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## CONTENTS



## Passenger Train Reductions

THE small extent of the temporary passenger train cuts introduced by the several Regions of British Railways from October 29, of which some details are given on other pages this week, in no way fails to justify the Railway Executive policy of giving ample warning to the public that curtailments may prove necessary, and of delegating almost complete authority to the Regions in the choice of services for cancellation. The reductions on Monday week, besides being temporary, may be, it is to be hoped, the only ones necessary this winter, though severe weather and possibly other factors affecting freight traffic, such as a further decline in railway manpower, or failure of some railway users to co-operate in unloading wagons, may necessitate further cancellations to be effected in phases, for which the Regions have their plans prepared. As it is, the reductions announced will come as a relief. Much ingenuity has been exercised in selecting for cancellation the less-patronised local and main-line stopping trains, main-line services such as those on the Charing Cross-Hastings line to which an alternative exists, and cross-country services which are relatively poorly patronised in winter, and which, by reason of their inter-Regional nature, are costly in train crews, and tend to follow the routes of cross-country freight services through congested traffic centres such as Banbury. Apart from a few cross-country services, no important inter-Regional services are affected, and no important long-distance expresses, the suspension of which, even temporarily, might have unfortunate psychological consequences from the standpoint of public relations. In the case of local train cancellations, care has been taken to interfere as little as possible with regular-interval services such as those of the Southern Region, whose regularity is an important selling-point. The problem has been made more difficult by the fact that all passenger train services for some time have been scrutinised with a view to pruning for reasons of economy; those that remain are the minimum consistent with earning adequate revenue from passenger and parcels traffic. Further reductions, therefore, will be increasingly difficult to devise, and can hardly fail to have some adverse commercial effects—though these would be outweighed by freight traffic considerations.

## Metal Economics

THE large quantities and wide variety of metals in common use by British Railways render specially authoritative the contribution to the Institute of Metals discussion on metal economics last Wednesday by Mr. C. Dinsdale, Regional Works Metallurgist, Eastern & North Eastern Regions. Mr. Dinsdale's subject was "Economy by Standardisation of Alloys and of the Method of Reclamation of Scrap Metals." His treatment covers standardisation of non-ferrous metals, with some reference to the uses to which they are put, under the headings of cast bronzes and brasses, whitemetals, wrought metals, packing metals, light alloys, and virgin metals in ingot form for foundries and workshops. His remarks on the reclamation and renovation by the railways of non-ferrous scrap are of especial interest, in view of the constant circulation of metals, which return periodically to railway workshops for re-use or scrapping. As most of the steels used by the railways before nationalisation were in accordance with British Standards, there is less scope for standardisation here than in non-ferrous metals, though a policy committee has been formed to recommend specifications for steels for rolling stock and like purposes.

## Proposed New Method of Steel Analysis

ALTHOUGH the spectrographic analysis of the alloying elements in steel may take minutes, where the older established chemical methods take hours, results in different works often disagree, which has meant that suppliers and users of steel have been compelled to adopt the longer methods to find a common standard. This problem is being tackled, with encouraging results, by a special committee set up by the British Iron & Steel Research Association, under the chairmanship of Mr. S. D. Steele, whose standardisation proposals were discussed at a conference organised by B.I.S.R.A. at Leamington Spa early this month. The proposals for the analysis of low alloy steels include the use of a quartz prism spectrograph and the calibration and standardisation of photographic conditions by the use of specified iron spectral lines and line pairs of fixed intensity ratios. In these special conditions reproducibility is expressed as a standard deviation percentage of the amount of a given element presents in the steel. The results obtained are based on a systematic series of spectrographic analyses carried out by the members of the committee and some 9,000 determinations were made by the recommended method.

## East African Railways

TO cope with changes which have resulted from the rapid development of the East African Railways system in recent years with a heavy increase in traffic and greater complexity in operating, a reorganisation of the Transportation Department is being undertaken. The functions of this department fall naturally into two main categories, operating and commercial. It is now being arranged that a senior officer with the status of a head of department, directly responsible to the General Manager, should be placed in charge of each of these functions. A Chief Operating Superintendent will deal with all matters relating to train operation and interrelated problems, and will also

be in charge of the ancillary marine and road operations. A Chief Commercial Superintendent will have charge of such matters as the rating structure, commercial accounting, the police, and public relations, as well as the catering services. The new organisation follows lines that have been recommended for a number of overseas railways on various occasions. It was common practice on most of the British railways before nationalisation. One of its principal advantages is that it achieves a natural decentralisation of responsibility and permits of concentrated supervision.

## Overseas Railway Traffics

DURING August working expenses of the Canadian Pacific Railway continued to advance on a scale which was in excess of the accompanying improvement in gross earnings, and reduced net earnings for the month to £86,000. The increase in working expenses exceeded that of gross earnings by £812,000 and amounted to £4,326,000; gross earnings for August were £12,087,000. During the same month Canadian National Railways operating expenses advanced by £5,353,000 to £16,976,000, but did not exceed the advance in operating revenues, which amounted to £5,618,000 at £18,335,000. Net revenue of the C.N.R. for August was up by £265,000 at £1,359,000. On the aggregate both C.P.R. and C.N.R. operating revenues show an improvement over the equivalent 35 weeks of 1950, but only the C.N.R. records an accompanying advance in net revenue. C.P.R. net earnings since January 1 have deteriorated by £867,000 to £4,361,000, though C.N.R. net revenue is slightly higher at £9,194,000, as compared with £8,692,000 for the equivalent period of last year.

## New Equipment for the Chilean Railways

CHILE has a total railway mileage of 4,289 miles on the broad (5 ft. 6 in.), metre, and 60 cm. gauges. The backbone of the system is the so-called "longitudinal" line running from Puerto Montt in the south, parallel to the coast and the mountains, to Pueblo Hundido in the north, partly on the broad and partly on the metre gauge. This line is crossed by the main electrified line from Santiago, the capital, to Valparaiso, the chief port. Other lines operated include the metre-gauge Arica-La Paz line—detached from the main network but connecting with the company-owned Antofagasta (Chili) & Bolivia Railway—and the Transandine, part of the direct route to Argentina. Extension of diesel operations on this varied system is foreshadowed in the recent call for tenders issued by the State Railways and referred to in our September 28 issue. Twenty-four diesel-electric or diesel-mechanic locomotives are required for general use on metre-gauge main lines, and thirty railcars and six trailers for the Arica-La Paz and Transandine lines and for branches. The Santiago-Valparaiso line will receive new electric motor coaches and trailers and the Transandine two electric locomotives and one mobile substation. Broad-gauge rolling stock includes 600 boxcars and wagons for the Santiago-Valparaiso and Santiago-Puerto Montt lines; to the southern portion of the latter will be allocated twenty 4-8-2 steam locomotives.

## Modern Permanent Way

A SURVEY of modern permanent way materials and methods of handling during renewals was given earlier this week by Mr. E. C. Cookson, Assistant Engineer (Permanent Way), Western Region, to the South Wales & Monmouthshire Railways & Docks Lecture & Debating Society. Mr. H. G. Lakeman, District Engineer, Cardiff, presided. The lecture was illustrated by films. After reviewing the various types of rail and sleeper in use in this country, the reasons for adoption of the flat-bottom rail, and the advantages and disadvantages of concrete and prestressed concrete sleepers, including some cost factors, Mr. Cookson dealt with methods of handling which reduce the cost of laying, otherwise augmented by the additional manpower needed to handle concrete, as against timber, sleepers. The methods of renewals discussed were those used in pre-assembled relaying, both piecemeal manual and crane relaying; a demonstration of use of a jib crane was shown in a film, and a number of variations of method in pre-assembled relaying also were enumerated. Another film showed the handling of pre-stressed concrete sleepers from receipt from the manufacturer to completed installation; two methods were portrayed: pre-assembly in 30-ft. lengths by crane, the track being subsequently re-railed, and handling at site by mobile cranes.

## Continental Services in 1952

THE inauguration next summer of an accelerated service between Great Britain, Holland, South Germany, and Switzerland *via* the Harwich-Hook of Holland night service is one of the most welcome decisions of the recent International Timetable Conference, of which some account appears elsewhere in this issue. A new limited train, the "Rhine Arrow," between the Hook and Basle will approximate in speed and general character to the "Rheingold Express" between the wars; by affording an afternoon arrival in Basle, it will give a service almost equal to that planned for the winter of 1939-40, when the "Rheingold" would have reached Milan from the Hook in one day *via* the Gotthard, giving a journey time of some 27 hr. from Liverpool Street to Milan through some of the finest and most varied scenery in Europe. New services by the Short Sea routes include a through Calais-Munich-Vienna coach worked in the "Orient Express" east of Strasbourg. The decision to decelerate the "Golden Arrow" between Calais and Paris, for whatever technical reason it was made, is regrettable, more particularly, perhaps, from the psychological point of view.

## A Weekend in London

TO those who are attracted by the idea of a stay in London, but are put off by possible expense, a weekend holiday programme which has been introduced by the Hotels Executive should strongly appeal. For an inclusive charge of only six guineas it offers accommodation at one of four of the Executive's hotels, from dinner on arrival in London on Friday night to breakfast on Monday morning; a reserved stalls or dress circle seat at a West End theatre on Saturday night; and the alternative on Sunday of a tour of London or a reserved seat at the Albert Hall or the Royal Festival Hall. The four hotels selected are the Charing Cross, Euston, Great Eastern, and Great Western Royal, any one of which is at or conveniently near to the terminus at which the visitor will arrive. All arrangements are made by the Hotels Executive, whose staff at the hotels will be ready to assist the visitor in planning his sightseeing. A folder publicising this enterprising venture has been produced; with it is a coupon on which the visitor's requirements may be listed.

## Improvements at Euston Station

EUSTON can rightly claim a premier position among the stations of Britain, for not only was it the first main-line terminus in London, it soon became and has continued to be the gateway to the North by the West Coast route. Due to the antiquity of its buildings, some of which were built in 1837, the station was first considered for total rebuilding in 1899, but despite various schemes, no extensive rebuilding has yet been undertaken and cuts in capital expenditure have now further shelved the problem. Despite these difficulties, the London Midland Region has made a determined effort to improve the facilities and appearance of the station and a more detailed account of what has been achieved is given elsewhere in this issue. By careful attention to detail very considerable improvements have been made, and in this direction credit is due to the Public Relations & Publicity Department, which has been responsible for extensive alterations to advertisement displays and station signposting. More effective use has been made of the architectural features of existing buildings and perhaps most striking is the redecorated Great Hall, which, without the present enquiry bureau, would be an outstanding example of earlier railway architecture. Such results

as have been achieved show clearly what can be done with a hopelessly out of date structure when every effort is made to make the best of existing features.

## Standards for 50-cycle Traction Motors

WE referred in our September 28 issue to the recent meeting of the International Electrotechnical Commission in London. One of the subjects discussed was the revision of International Standard No. 48, equivalent of British Standard Specification No. 173, 1941, for traction machines necessary for application to 50-cycle traction motors. It is understood that no final decision was reached, but that delegates agreed to the suitability of International Standard No. 48, subject to reservations. B.S.S. 173 gives standards for motor performance under the heads of temperature, overspeed, commutation, and high voltage tests, efficiency, and characteristic curves. Consideration of the design problems which are the background to the standards makes it clear that the majority of the limits imposed are unaffected by the change from d.c. to a.c., which is not surprising, as the specification is expressly intended for both d.c. and a.c. traction machines. Unfortunately it is unlikely that the British delegates can contribute much to this question, as there has been no experience of 50-cycle traction motors in this country.

## Standards of Service in Transport

THE problem of what service to give and to maintain for all users of passenger transport, assuming a generalised service, is one of several discussed by Mr. A. B. B. Valentine, Member of the London Transport Executive, in his Presidential address last Monday to the Institute of Transport. In passenger transport, he maintains—and his thinking is naturally influenced by the conditions of London passenger transport—the sale of transport is not that of individual articles to individuals. "We cannot cater with detailed refinement for each income group."

In both passenger and goods transport the service must be used in common by many travellers or consignors, some of whom, if they could choose, would prefer a lower price with the implication of inferior service whilst others would prefer superior service at a higher price. There can be no consistent public opinion or recognisable consumer choice precise enough to determine the required standard of service. Only the management can assess this. There must be a clear idea of the minimum acceptable standard of service for a particular type of traffic, which standard must be applied equally to all like cases. The minimum standard must be expressed in terms of the degree of hardship to users of the service if the service were inferior in quality or quantity. Mr. Valentine stresses the ethical importance of applying the minimum standard as equally as possible in all like cases, which arises from the inevitable practice of averaging transport charges without regard to the cost or load factor of individual services. The equity of this may be evident in a close-knit urban community, but it is "much less evidently valid . . . when the Continental passengers of British European Airways are permanently called upon to subsidise their passengers to Benbecula or Uist. The community of interest is then, to say the least, thin." It is clear, however, that where costs are averaged in charges, the commercial test is of no help in settling the standard of individual services; if the general level of charges is right, some must be extremely profitable, others a constant source of loss. It follows that services which are or would be unremunerative at the averaged charges cannot be rejected on that account.

There is no right answer, he states, to the question whether to lower the quality or quantity of service, or raise charges. It depends on "the management's judgment whether the public will pay the marginally higher prices eventually required if the better service is provided. . . . In relation to the public transport services provided in this country the public as a whole will be more satisfied with better standards of service at somewhat higher charges than with the present or inferior standards at somewhat lower charges. There will of course always be a storm of protest if charges are raised. But if the providers of transport were free to fix their charges unquestioned, and public enquiries were established for probing the standards of service instead, equal storms would be raised not only against proposals for reducing facilities but even against failure to improve them."

In so far as the weakened financial position of a transport undertaking is due to a time-lag in adjusting charges to keep pace with higher costs, Mr. Valentine does not consider that this justifies lowering the standard of service; one year must be taken with another. "This obviously requires the qualification," he adds, "that where the volume of a service is governed by the capacity required (as in suburban peak-hour traffic and seasonal holiday flows), and the volume of the traffic offering declines, a proportionate reduction of the service will not impair the standard and may be proper. But where the volume of a service is governed by convenience, the services should not . . . be varied with every fluctuation in demand. When loadings of buses and trains increase in good times, within the limits of capacity, extra mileage is not run: we are thankful for a better load factor. When loadings fall in less good times, we must not immediately punish or deter the traffic by cutting mileage and impairing the standard of service." The long-term trend of traffic is to grow, and a temporary decline does not warrant the assumption that the trend has changed. Traffic grows primarily because facilities are offered and improve over the years. In passenger traffic, rapid growth may result from improved facilities, such as the Southern Railway suburban electrification. "Unhappily," Mr. Valentine observes, "experience also abounds in nameless examples of traffic disappearing where the standard of facilities has stood still."

He admits that there are cases in which lowering of standards of service, particularly of luxury, is right, such as the introduction of third class sleeping accommodation and buffet cars and, perhaps, of special "tourist class" aircraft, but "none of these examples alters my general belief that at least in inland transport . . . the standards of service generally call for continuing improvement; that we have far from exhausted the possibilities of stimulating traffic by this means; and that the effect of doing so is nationally beneficial." Through increased efficiency, the greater volume of travel induced by better facilities outweighs their added cost, so that passenger travel becomes progressively cheaper in real values. "All experience," says Mr. Valentine, "goes to show that, by and large, economy at the expense of the standard of service is commercially wrong and against the public interest in the long run."

After briefly discussing and advocating of national research in passenger transport, Mr. Valentine makes a good case for increased capital expenditure on transport. Nothing today is impairing the efficiency of transport more seriously than capital starvation, he declares. "I am convinced that some of the most urgently needed capital expenditure on roads and railways, of benefit to the movement of both passengers and freight, could be shown to be more productive than much other capital investment now being allowed to take place in other industries."

It has been estimated that the return in increased national productivity on such an investment would be about three times greater than that obtained from the same amount of capital spent on oil, steel, or electricity and about equal to the return from similar expenditure on coalmining.

Capital expenditure on the railways, Mr. Valentine rigidly points out, is far too much restricted. "Even by the hardest economic tests it would pay the nation handsomely to divert more capital investment to the reduction of freight costs by rail. Of every £100 spent on buying steel, the transport costs of the raw materials and fuel used, and delivery costs, represent about £18 in the U.S.A., but only about £12 in Great Britain. This shows how great the economic value of low transport costs can be; but the difference in our favour could be made much greater but for the planned restrictions on capital investment, which are in sharp contrast to the high priority

accorded to restoration and modernisation of the railway systems in France and Holland, for example."

Of the present quota of British Railways over two-thirds has to be spent on track renewals and other civil engineering works essential to safe running even at existing sub-standard speeds. The margin left for real improvements must be trifling compared with the scope that must exist for increasing productivity—mainly by large schemes for improvement of marshalling yards; by the modernisation and mechanisation of freight terminals; by large-scale electrification schemes; and by wagon programmes which would accelerate the disappearance of the slow-moving grease-axle-box types, the adoption of a universal vacuum or compressed air braking system fitted to all wagons, and standardisation on types of the most economical capacity and design properly related to the needs of industry and trade. The desirability of such projects is not generally disputed, but Mr. Valentine asks whether their economic value to industry and to the community as a whole has been well enough presented to secure the priority to which they are entitled.

Even improvements primarily designed for passenger traffic may have economic value; this is illustrated by Mr. Valentine in the proposed London tube line between the North East, Kings Cross, Victoria, and the South or South West, which, he demonstrates, would result eventually in immense savings of wear and tear to existing lines, time, and so on—but " only a small part of the real gain will be reflected in the British Transport Commission's accounts."

It is for the economists and statisticians, Mr. Valentine says, collaborating as required with scientific research workers, to measure more thoroughly the benefits, both direct and indirect, to the national economy from capital expenditure on specific schemes, whether for new works or re-equipment, designed to increase the efficiency of transport. Whitehall must not be blamed for blue-pencilling claims not adequately substantiated by the claimants. Yet nothing today is impairing the efficiency of transport more seriously than capital starvation.

## Effect of New Passenger Fare Proposals

THERE was a reference in an editorial note in our October 5 issue to the fact that, though the Passenger Charges Scheme, 1951, was intended to yield in the region of £17 million additional revenue to the British Transport Commission in a full year, this amount might well have been offset already by rises in steel and other prices, quite apart from a likely £9½ million extra cost resulting from railway wage claims about to come under review. Now it is known that wage increases granted since June and claims now in process of negotiation will add at least £15 million to B.T.C. expenses in a full year. This figure was given by Sir Malcolm Trustram Eve, K.C., when the inquiry by the Transport Tribunal was resumed in London on Wednesday in last week, our report of which is continued in other pages of this issue.

Sir Trustram Eve, for the B.T.C., stated that he would ask for the yield of the present scheme to be increased so as to provide as much as £4½ million, some £4 million of which would come from the London area. The original scheme, it will be recalled, allowed for an additional £10·9 million from passengers in London and £5·7 million from those outside London. Even with these increases there would be a total shortfall of £15·7 million after including provision for £25 towards liquidating past deficiencies and building up general and replacement reserves. With an additional £15 million for wages the shortfall would be increased to £30·7 million a year. Under the new proposals the lowest ordinary single fare for London Transport would remain at the first proposed figure of 2d. a mile. The next highest fare, for two miles, would go to 3½d., and subsequent mile stages up to ten miles would carry fares of 5d., 6d., 8d., 9d., 11d., 1s., 1s. 2l., and 1s. 3d. The original scheme proposed that season tickets should not be raised by more than 25 per cent., but it is now proposed to allow a maximum increase of 50 per cent., while a further proviso is that other fares may be increased by 75 per cent. instead of 50 per cent.

Other proposals now put forward include the withdrawal of various ticket concessions including season tickets for traders. These have been issued for over 100 years and the B.T.C. considers that there is now no justification for singling out commercial travellers for special benefit to the disadvantage of others. During 1950 it was found that 70 per cent. of the holders of such tickets in the Southern Region used them for residential purposes to and from their homes. Another concession it is proposed to abolish is bulk travel, which also is considered unfair to other passengers. From this a net yield of £573,000 is expected in future.

Objectors to the draft scheme have suggested that there should be discrimination in favour of those passengers who have to travel of necessity. This suggestion is being opposed on financial, commercial, and practical grounds, since its effect would be to reduce the estimated yield in the London area from £11 million to £2 million.

## The Annecy Conference

FEW of those who attended the S.N.C.F. convention on 50-cycle a.c. traction last weekend can have left Annecy with their views on future developments in electric traction entirely unaltered. This is a tribute rather to the thoroughness of the investigations described than to special persuasiveness in the speakers who all approached their subjects with as great objectivity as was possible to the converted. In this connection we may fittingly express the appreciation of the English-speaking delegates at the courtesy of the S.N.C.F. in having all the papers translated and printed in English for their benefit.

In considering the results of this interesting applied research in broad outline and drawing special attention to important points, it is as well to be clear at the outset what information was already available before the experiment began. It is obvious that the problem of 50-cycle electrification divides naturally into two fields—fixed installations and rolling stock. In both, theoretical investigation had already provided much information regarding probable performance obtainable, substation capacity and spacing required, the type of overhead line most suitable for the particular traction supply selected, and so on.

For certain of these factors, such as performance, and type of overhead equipment, experience in other countries with apparatus not greatly dissimilar—for example Continental experience of high voltage a.c. at 16⅔ cycles—provided an excellent starting point. Intelligent guesswork could predict many of the economic factors such as substation and rolling stock first cost, but to carry such entire conviction as would permit carrying any full-scale 50-cycle high-voltage scheme more knowledge born of experience was clearly essential. No theoretical investigation ever carries full conviction, least of all with those who have to measure the working of their railway systems by the inflexible standard of the profit and loss account. Thus it is that imponderables such as maintenance costs and the amount of communications interference created by 50-cycle overhead lines—to mention only two items—must be brought to the test of practical working; thus it was that the Aix-les-Bains to La Roche-sur-Foron line was experimentally electrified at 25,000 V. 50 cycles.

Considering first the fixed installations, the principal problems to be examined were the supply of single-phase power from a three-phase 50-cycle industrial system, the necessary substation installations, and the interference caused to nearby communication cables. The first problem was examined in considerable theoretical detail by M. Chappée, Chief Engineer to the Electric Traction Research Division, S.N.C.F., who also gave some account of ways in which the phenomena occurring in the three-phase system as a result of any asymmetric loading could be recorded. It was pointed out that this problem of disequilibrium due to asymmetric loading is not new but is already presented by welding establishments and electric furnaces. M. Chappée's conclusion on the whole question may be

summed up in the words of M. Garreau, Chief Engineer, S.N.C.F.—" in practice, in existing supply systems one finds a great number—and this will become greater in the future—of feeder points of sufficient capacity that single-phase loads of 10,000 to 20,000 kW. will be practically unnoticed from the viewpoint of disequilibrium."

It is perhaps pertinent at this point to observe that the industrial power supply available in the Aix-La Roche area is by no means ideal for the purpose of these tests and as a result of overcoming difficulties in this respect much useful information has been obtained. Turning now to the substation arrangements, the visit and the explanatory paper on the Annecy substation disclosed an astonishing amount of improvisation of equipment to allow these experiments to be made with least expense. Much of the equipment used was originally ordered for the Paris-Lyons electrification and was temporarily modified. It is intended in due course to install a permanent feeder station at Annecy, and this equipment will then be returned to the Paris - Lyons line.

As Annecy is situated roughly at the centre of the 50-cycle electrified section a Scott-connected transformer group gives three-two phase conversion and each half of the line is fed from one of the two secondary phases. Incidentally, the Annecy substation is fed from the 50-km. long feeder supplying a rather low power to the town itself. As a result of this low capacity feed, measures had to be taken to reduce the voltage drop on the supply. Among the methods tried were " over-compounding " by special transformer windings, the use of auto-transformers, and the installation of four condenser stations, two of which had capacities of 640 kvar and two of 320 kvar.

To obviate interference with telephone cables it is now the practice of S.N.C.F. to arrange with the telephone authorities for wires running parallel to the track to be buried in cable. This is regarded as the only satisfactory solution. It was pointed out by M. Garreau that this solution benefits both the railways and the telephone company in giving better quality transmission. Interference with signalling and track circuits has been met by several solutions: rail circuits isolated on the two running rails and fed by a current at 83 cycles; rail circuits isolated on a single rail and fed by a continuous pulsing current; and rail circuits fed by direct current and isolated on a single rail.

Finally on the fixed installations, certain economic criteria were applied. Attempts were made to estimate the advantages to be derived from 25,000 V. 50-cycles installations in comparison with a fictitious installation at 1,500 V. d.c.; this fictitious equipment is for a line having characteristics similar to those of the average French line which is likely to be electrified in this manner. On the assumption that the two lines carry the following alternative traffics:—

(i) 75 trains and 32,000 ton km. gross evenly spaced

(ii) 75 trains and 32,000 ton km. gross with marked peaks

(iii) 50 trains and 22,000 ton km. gross,

the following economies might be expected with 25,000 V. 50-cycle electrification:—

(*a*) On the high tension feeders and substations 77 per cent., 68 per cent. and 76 per cent. for traffics (i), (ii) and (iii), respectively ;

(*b*) On the catenaries, economies of 31 per cent., 33 per cent. and 31 per cent. respectively ; and

(c) On safety measures, 16 per cent., 30 per cent. and 16 per cent.—traffic (ii) assuming automatic block working.

The overall economy in installing 50-cycle electrification appears to be about 38-39 per cent. as compared with 1,500 V. d.c. Although these figures require careful examination, it appears that they cannot be extremely inaccurate. They will serve to indicate the order of magnitude of the economies to be expected for the fixed installations, and it is unlikely that they will be entirely vitiated by higher prices for the motive power equipment except where most intensive traffic is involved.

## Iraqi State Railways

WE have received from Mr. W. J. Moffatt, Director General, Iraqi State Railways, his administrative report for the year ended March 31, 1950. Despite a loss of some 106,000 Iraqi dinars (I.D.) on the working of Iraqi Airways, and after crediting I.D. 400,000 to the renewals reserve fund, the net surplus of revenue over expenditure totalled I.D. 285,765; the surplus expected in the budget was only I.D. 112,500. This was mainly due to an increase of I.D. 237,000 over the estimated revenue from goods traffic, resulting from heavy export grain movements in the latter part of the financial year. In fact, both total goods tonnage, 1,980,795 tons, and goods ton-km., 657,096,683, were the highest since the war-traffic year 1944-45, and the ton-km. figure even exceeded the peak figure of that year. The airways deficit is accounted for by adverse economic conditions, increased competition from other airlines, and by increased costs of spare parts and fuel oils as a result of sterling devaluation.

Normal track renewals were delayed for lack of materials until their completion was impossible owing to the advent of the rainy season. Heavy rainfall in early April did much damage to embankments in the northern areas, and caused the opening of the Kirkuk-Erbil extension to be postponed from April to June, 1949. This heavy rainfall was repeated in January, 1950, and passenger services on the Erbil extension had to be suspended temporarily.

Delay in the negotiations for a £3 million loan in the United Kingdom to cover capital account commitments held up delivery of materials from that country for the new Baghdad Station and other capital works. However, as mentioned above, the Erbil extension was opened to traffic. Work on the road-rail Tigris Bridge continued satisfactorily, the main steelwork being completed and the road surfaced, but shortage of material delayed trackwork. The new Euphrates Bridge south of the Hindiyah Barrage was completed on November 21, 1949. Work on the new Baghdad West layout was still in abeyance.

Turning to operating results, it is reported that the operating ratio showed a satisfactory fall as follows:—

| Year | Ratio excluding renewals replacements, betterments, and service of loan Per cent. | Ratio including costs in previous column Per cent. |
|---|---|---|
| 1948-49 ... ... ... ... ... | 91·5 | 99·5 |
| 1949-50 ... ... ... ... ... | 81·8 | 92·8 |

Other results were:—

| | 1948-49 | 1949-50 |
|---|---|---|
| Railways | | |
| Train-kilometrage (thousands) ... ... | 4,676 | 4,704 |
| Passenger-journeys ,, ... ... | 3,340 | 3,609 |
| Goods ton-kilometres ,, ... ... | 497,306 | 657,097 |
| Coaching receipts (I.D. thousands) ... | 789 | 833 |
| Goods receipts ,, ... | 2,290 | 2,527 |
| Miscellaneous receipts ,, ... | 38 | 15 |
| Total revenue from operation (I.D. thousands) | 3,117 | 3,375 |
| Working expenses ,, | 3,122 | 3,141 |
| Airways— | | |
| Passenger journeys (thousands) ... | 15·2 | 16·5 |
| Revenue ton-miles (passenger, baggage, mails and cargo) (thousands) ... | 683·2 | 614·8 |
| Revenue (I.D. thousands) ... ... | 265·0 | 257·3 |
| Expenditure ,, ... ... | 248·9 | 363·2 |

Road competition persisted, especially in the Baghdad area, and no progress was made in the matter of co-ordination of transport. The devaluation of the Iraqi dinar and consequent increase of rates by Syrian and Turkish railways dating from October, 1949, was responsible for serious decreases in through goods tonnages to and from those countries; the decreases were 84 and 74 per cent., respectively. Consequently, receipts from these traffics totalled only I.D. 41,190 against I.D. 131,700 in 1948-49.

New coaching stock received from the United Kingdom and placed in service during the year included air-conditioned first- and second-class, third-class, and two brake-luggage broad-gauge bogie vehicles. A number of machine tools also was received from Britain. There were 21 broad-gauge and 106 plus two Sentinel metre-gauge locomotives in service during the year. The engine kilometrage per engine failure for both gauges rose from 169,167 in 1948-49 to 209,440 in the year under review.

## Winter Freight Movement Plans

THE continued silence of the Government on the subject of deferment of military service for railwaymen—or of the suggested substitute, military training whilst serving on the railway—is not unexpected in the throes of a general election; but the incidence of normal conscription, as we pointed out last week, bears heavily on the railways, especially in firemen, where the manpower shortage is most severe, although the total number of men concerned is not great. A decision on conscription for railwaymen if not announced very soon, is one of the most pressing tasks of the newly-elected Government; any relaxation of the present procedure would go far to help the British Transport Commission and the Railway Executive, with the co-operation of industry, to solve the winter freight movement problem.

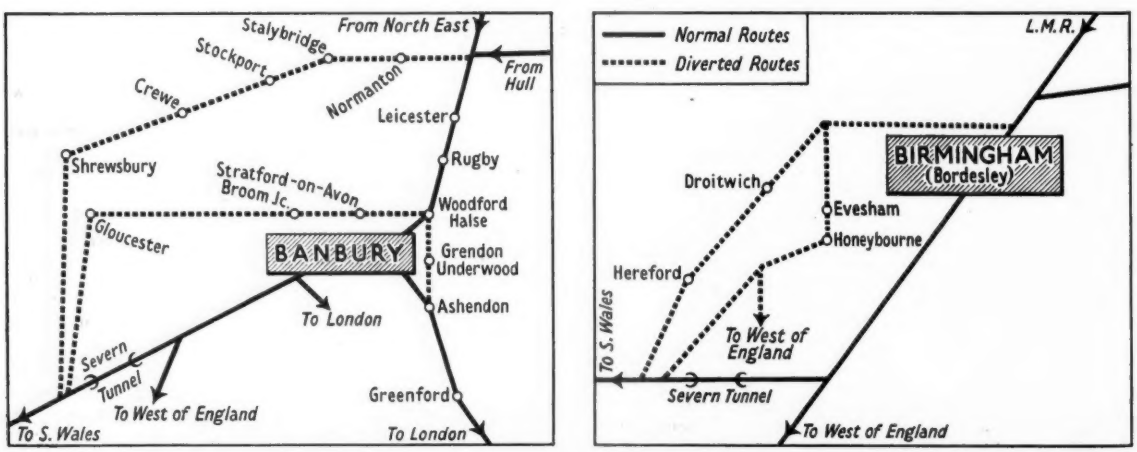
Meanwhile, the emergency measures to deal with the situation, described in our last week's issue, go about as far as is possible for nationalised transport and transport users to help themselves. The new emergency organisation now comprises, at the highest level, a Central Winter Transport Conference, under the chairmanship of Mr. F. A. Pope, a Member of the B.T.C.—and an experienced railway operating officer before his entry into general railway and transport management—with the railways represented by Mr. David Blee, Member of the Railway Executive for commercial matters, road transport by Mr. Claud Barrington, Member of the Road Haulage Executive for traffic, and representatives of the Federation of British Industries, the National Farmers' Union, and the Association of British Chambers of Commerce. This body will be concerned with major questions of policy.

Under the Conference is the Winter Transport Central Joint Committee, which consists of the Commercial Superintendents of the several Regions of British Railways, the Chief Traffic Officer and the Divisional Traffic Officer for Scotland of the Road Haulage Executive, and representatives of the bodies mentioned above. This in turn supervises the 51 local Joint Committees referred to last week. Representation at each level of railway users ensures that the leaders at least, and probably management at all levels of industry, will co-operate. The reactions of the press, of which some instances are given elsewhere in this issue, tend to confirm this.

Whilst industry is not happy about winter transport prospects, there is satisfaction at the full and frank discussions which its representatives have had with the B.T.C. and its Executives, partly because no effort was made to whitewash the situation, and partly because of the opportunity given to industry to advise on and to participate in the measures taken. There are naturally some misgivings as to the scope and cost of the emergency organisation. Whilst it is clear that it is an emergency organisation only, and purely temporary, it may not be so clear how it can function without cutting across the existing complex organisation of nationalised transport, and transport users' associations, and without stifling local initiative—and already much has been done by local initiative and by co-operation between the railways, road haulage, and transport users on the ground to solve the present and previous traffic difficulties—with more and more directives from higher levels. The answer is that the existing traffic organisation, which is in any case still developing in the light of experience since nationalisation, and in many cases has been sufficient for its purposes, is not sufficient to cope with the exceptional situation now arising, that the new organisation has been needed to supplement, and not to supplant, the existing organisation, and that more local initiative will be required to deal with local emergencies.

The cost of the new organisation itself is negligible compared with the immense cost to the national economy of the transport hold-ups and delays which it is designed to preclude. The cost of diverting traffic, re-arranging train crew workings, lodging enginemen, and of other railway operating measures, let alone the loss of railway passenger revenue from reduction—should it prove necessary—of passenger services, is very great; but, as Mr. Pope has pointed out, it is small compared with the great issues at stake. Some of these measures, which are mainly to remedy a situation due to manpower shortage, might not have been necessary had the Government faced the question of conscription of railwaymen, nor if greater capital expenditure on railway maintenance and improvements had been authorised many months ago by the Treasury. Some indication of the complexity of the re-routing measures is given in the diagrams on this page, but re-routing is no new problem to the railways, and some, at least, of the alternative lines of traffic have been used before.

To judge by the performance of the railways during the crisis last winter, railwaymen can be relied on to respond as magnificently as they have done before—which includes the working of many hours of overtime by many members of the operating staff, often in bad weather. Railwaymen are accustomed to a seven-day week, and adverse reactions on the part of employees—if they occur at all—might be expected more in matters such as wagon clearance at weekends in industries where a five-day week has become normal. It has been stated that the trade unions both in the transport and transport users' industries should have been consulted before the emergency measures were decided on. The transport unions are very well aware, and have been kept informed, of developments, to which they have not objected; and no wise management would take decisions which it had reason to believe would be strongly opposed by the unions concerned.




*Diversion of freight traffic to relieve Banbury and Birmingham (Bordesley), Western Region, where congestion is likely to occur. The diagrams do not indicate all diversion routes or combinations of routes*

# LETTERS TO THE EDITOR

*(The Editor is not responsible for the opinions of correspondents)*

## The Tea Room at Victoria

October 15

SIR,—In your October 5 issue the Hotels Executive has read with interest the letter from your correspondent, Mr. W. B. Stocks, Chairman of the Huddersfield Railway Circle. My Executive feels sure that your correspondent and other readers will be interested to know that the tea room on the Eastern Section at Victoria Station was closed on September 10 this year for complete modernisation, and it has no hesitation in saying that when the tea room is re-opened it will incorporate all modern features which it trusts will give pleasure and good service to many passengers.

Yours faithfully,
T. H. BAKER
Secretary

The Hotels Executive,
222, Marylebone Road, London, N.W.1

## Railways and Broadcasts

October 12

SIR,—I listened this morning quite by accident to a broadcast, intended presumably, for schools, about the working of freight trains. It described, amongst other things, the running of a freight train on a stormy night when a tree was blown down across its track. This was discovered by a permanent-way man who took the usual and proper steps to block the line.

Then came a piece of propaganda informing all and sundry that on the London Midland Region every mile of line is patrolled daily to ensure safety of passengers and goods alike, and so on. Why single out the London Midland Region for mention; surely line patrolling is not peculiar to that section only? There is far too much of this "L.M.-esmerising" of our railway news both by the B.B.C. and by a section of the Press.

If we have national railways and a national broadcasting undertaking, why cannot we have national railway broadcasts?

Yours faithfully,
A. J. PRITCHARD

19, County Road, Swindon

## Railway Efficiency

September 17

SIR,—In your September 7 issue, Mr. J. H. Laundy claimed that if fares were reduced to ½d. a mile (1d. first class), passenger train miles would have to be increased from 20,177 millions to 50,846 millions. Evidently, he visualises the present trains continuing to run practically empty, and numbers of new trains being put on to carry the additional passengers! He takes no account of a great reduction in train mileage by avoiding the running of promiscuous excursions. In 1938, the L.M.S.R. alone ran nearly 22,000 excursions—roughly equal to 500 a week. (Your September 14 issue records that in 1937 and 1950 first class passengers dropped from 48,354,000 to 25,071,000. In 1913, they numbered 88,000,000).

The immediate pre-war average fare was ¾d. a mile. Even at this level, the railways were losing passengers heavily to the roads, and, of course, these accounts fellows are not a bit conscience-stricken at the huge toll of accidents—the cost of which is more than the total receipts from railway passengers! If, however, they calculate that the reduction to ½d. a mile would not pay, why do they continue issuing many excursion and special fares at that rate? We even read of roundabout tickets being issued at six or seven miles a penny!

A prospective passenger should not be required to do more than pick up the ordinary timetable, and travel by any train, any day, wherever he pleases, at ½d. a mile fare, instead of the railways calling on the public to visit their stations and enquiry offices to have the present cranky "cheap" booking arrangements explained to them. Most of these enquiry offices could be closed, and the complicated ticket system greatly simplified—both resulting in substantial economies.

In the railway statistics published in your May 21, 1948, issue, total receipts from passengers only were given as £169,075,000. I cannot find mention of the £116,996,000 Mr. Laundy claims there to have been. In your April 28, 1950, issue he also said that of the £205,000,000 earned by B.T.C. road transport, £110,000,000 was largely competitive traffic. Again, he took no notice of the heavy traffics carried by private road passenger concerns, nor of the huge private car traffic which has been created mostly by excessive railway fares.

Through the persistence in retaining these anomalous conditions it should be quite obvious that the public cannot expect its railways to be "efficiently and economically conducted" while it continues to remain under the domination of "book-keepers," who neither understand the operative work nor—as their writings to the Press often betray—even possess a proper knowledge of the elementary principles and economics of transport.

Yours faithfully,
E. R. B. ROBERTS

Eynesbury, St. Neots

## Electric Lines Closed

October 11

SIR,—Having observed a few weeks ago one of the London Midland Region Lancaster-Heysham electric trains rusting away in Morecambe Station, and more recently the removal of electric equipment from the Willesden Junction-Kensington Olympia section, I have found the following facts on the state of electric traction on British Railways illuminating. Since 1939, passenger electric services have ceased over the following sections, either by complete closure or by reversion to steam traction as equipment has become obsolete:—

| | Miles |
|---|---|
| Willesden Junction—Kensington Olympia ... ... | 3 |
| South Acton—Kew Bridge ... ... ... ... | 1 |
| Bury—Holcombe Brook ... ... ... ... ... | 3¾ |
| Marsh Lane—Aintree ... ... ... ... ... | 3 |
| Lancaster—Morecambe—Heysham ... ... ... | 7¼ |
| Total ... ... ... | 18¼ |

Also threatened with closure are the Watford to Rickmansworth and Croxley Green branches with a further mileage of 5½, so that the decrease in electrified mileage will more than offset the 20 additional miles electrified from Liverpool Street to Shenfield. Not in public service there is a short length of electrified line for trial use near Wath, and the Fenchurch Street-Bow section which remains in a state of suspended animation. Such is the march of progress on British Railways!

The fate of the Lancaster-Heysham section is of some interest as the wiring and overhead structures are probably unsuitable for use with the British standard voltage of 1,500 d.c. This line might offer an opportunity to experiment in this country with the high-tension 50-cycle a.c. supply tried in France between Aix-les-Bains and La Roche-sur-Foron, as the existing lineside equipment could possibly be used in this case. It is to be hoped that this solution is being considered before the decision is taken to hand the line over to the scrap merchants.

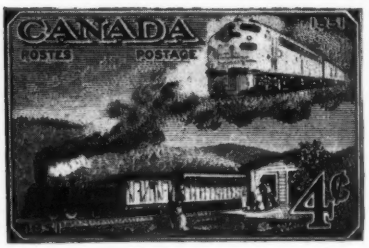
Yours faithfully,
J. N. FAULKNER

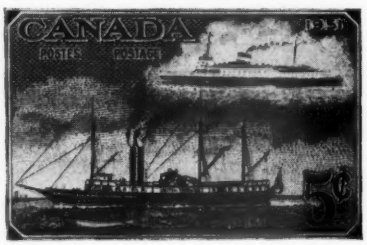
53, Westfield Road, Surbiton

# THE SCRAP HEAP

### Canadian Postal Centenary

To mark the centenary of its postal system the Canadian Government has issued special 4, 5, 7, and 15 cent stamps. The accompanying illustrations of the 4 and 5 cent denominations depict one hundred years of progress in mail transport.




*New Canadian stamps to commemorate postal centenary*

### Meals and Maps

One car in the Canadian royal train contains a dining-room, which seats twelve, and a case holding an atlas.

Cases containing atlases are not statutory articles of furniture in non-mobile dining-rooms. When one is eating a meal in a train in this country, one doesn't have the same need for an atlas. The country is there, rolling outside the windows.

But how nice it would be if, when we went into a restaurant, we could really dine *à la carte*. Good food intensifies one's interest in travel. As one drinks one's burgundy how agreeable it would be to toy over a map of the French wine country. — *From "A Scotsman's Log" in "The Scotsman."*

### Habits of Oxford Trains

The ritual pause made by London trains approaching Oxford Station invariably takes place in the middle of the Oseney cemetery. Its object is to provide travellers to Oxford with the proper facilities for those Meditations among the Tombs which formed such a wholesome exercise for all persons of culture and breeding in the days when the railway first encroached upon the academic seclusion of early Victorian Oxford.

It must be matter for pride in the rich continuities of English life that this laudable custom should have survived so triumphantly the nationalisation of the Great Western Railway . . . it is a sobering thought that an explanation of this courteous and unobtrusive service still offered by British Railways to an unappreciative public should be really necessary in your columns.— *From a letter to "The Times."*

### Bilk Traffic

A labourer was sent to prison for a month at Exeter for travelling on the railway without paying his fare and for refusing to give his name and address.

"Where were you making for?" asked the Clerk of the Court.

"I was going to Salisbury," replied the defendant.

What for?—For a summons for travelling on the railway without a ticket.

Defendant added that he came out of prison three days before after serving a one-month sentence.

"What were you inside for?" asked the Clerk.

"Travelling on the railway without a ticket," he answered.—*From the "News of the World."*

### Rush Hour Rhymes

COLLECTOR COCLES, 1950

(*From brave Horatius descended straight—*
*One kept a bridge, the other keeps a gate*)

Day after day, in fog, or rain, or shine,
Stands brave Horatius, t'wixt eight and nine;
Keeping the gate, with mild authority,
Little evades his hawk-eyed scrutiny.

Like the abhorred Assyrians of old,
Who fell like ravening wolves upon the fold,
Suburbia's serried ranks, in stern array,
Do battle with this lonely man each day.

See how their vanguards storm the crowded stairs,
Striving to take our hero unawares,
Hypnotised victims of fallacious speed,
Pleading and passionate in their hour of need.

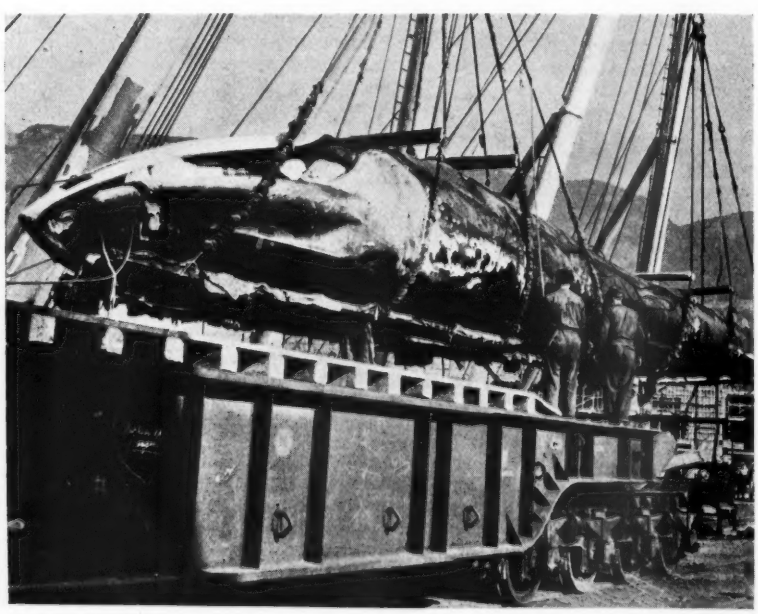
True, 'tis a splendid fury in its way,
This dash for duty at the "dawn" of day,
But you should hear these plaintive souls berate
The stationmaster if a train is late!

Just here and there a grizzled veteran stands,
Filling his pipe with unexcited hands;
For him no fanciful illusions rise
That he can take Dame Fortune by surprise.

Armed with a pair of nippers and much guile,
Our Cocles chuckles, with a cheerful smile:
"Bless 'em—for all their morning hymn of hate,
"They only curse who stand outside the gate!"

A. B.

### Unusual Consignment



*Loading embalmed whale at Bergen, Norwegian State Railways, on specially-fitted wagon, consigned to Copenhagen* (*see Scrap Heap for October* 5)

# OVERSEAS RAILWAY AFFAIRS

*(From our correspondents)*

## INDIA

### E.I.R. Coal Loading

An average of 2,411 wagons a day was loaded with coal on the East Indian Railway in Bengal and Bihar coalfields during August, 1951, against 2,300 wagons aimed at. It is stated that this is the highest average daily loading figure for coal since 1930. The corresponding figure for August last year was 2,136.

### Building of H.A.L. Coaches

Seventy all-metal broad gauge coaches of model 407, built by Hindustan Aircraft Limited, Bangalore, have been built; 44 have gone to the Eastern Punjab Railway and 26 to the B.B.C.I. Railway.

Another 150 being constructed will be allocated to the following railways: E.I.R. and E.P.R. (66); B.B.C.I.R. (26); G.I.P.R. (26); B.N.R. (20); and Southern Railway (12). The company has received an order from the Railway Board for a further batch of 150 of these coaches.

These coaches are 10 ft. wide and 69 ft. 4 in. long and have accommodation for 76 third class passengers. They are a development of the model 404 coaches, of which 100 were completed to the order of the Railway Board by July, 1950. The development of lightweight coachbuilding by Hindustan Aircraft Limited was described in our July 20 issue.

## TASMANIA

### Educational Courses

An educational correspondence course in traffic operation, safe working and station accounts has been inaugurated by the Railways Institute.

### Increase in Rates

The Cabinet has approved increases in railway freights ranging from 10 to 50 per cent. It is estimated that they will bring in an extra £A280,000 for a full year. Higher rates are necessary because of increased working costs and expectation of a further increase in the basic wage next quarter. The major increases will operate on longer haulage items such as coal, minerals and pulpwood. There will be no increase in passenger fares.

Road permit fees will be increased by 60 per cent. with a provision for special rebates in the event of the railway being unable to carry goods either through shortage of rolling stock or unsuitability of goods for railway haulage.

### New Check on Luggage

A new system of checking passengers' luggage has been introduced. Consecutively numbered labels will be attached to every article of passengers' luggage placed in the guard's van, provided that it is received for despatch fifteen minutes before the advertised time of departure. Every label has been perforated near the square end and the small portion is handed to the passenger at the originating station. The large portion is affixed to the luggage. Both ends of the same ticket are printed with the same destination and consecutive number and delivery at destination will be made against surrender of the check handed to the passenger at the originating station.

### Public Works Programme

A Bill to provide £A1,090,017 for the Transport Commission has been introduced; £A400,000 is for diesel and heavy steam locomotives, and other items are: signalling, £A200,000; purchase of land for Devonport yard, £A35,000; payment to Commonwealth for locomotives, £A85,667; and an additional amount for construction of motor shop at Launceston. The sum of £A120,055 is to be re-appropriated for the construction of new stations at Hobart and Launceston.

## ARGENTINA

### Nationalisation of F.C. Provincial

The Ferrocarril Provincial de Buenos Aires, owned by the province of Buenos Aires, and the only important line to remain outside the State railway organisation, has now been nationalised.

Its confinement within the provincial boundaries has hitherto hampered its development. The transfer will facilitate extension from its present terminus at Avellaneda, on the outskirts of Buenos Aires, into the city and port, and, at the other end, from Meridiano V (on the boundary between Buenos Aires Province and La Pampa) to the Southern Territories.

The system was established by a law of 1907. It is laid to metre gauge and is 561 miles long. There are 60 locomotives, 99 coaches and vans, and 1,178 wagons.

## SPAIN

### Short-Term Programme for Railways

In a recent statement, the Minister of Public Works & Transport announced that the Government short-term programme for the railways excluded putting in hand any new lines. All efforts were to be concentrated on completion of the lines now under construction, and particularly on improvement of existing lines.

## ITALY

### Fruit Traffic to Britain

The conveyance of fresh apples and pears in wagon loads from Italy to the United Kingdom has become the object of keen competition lately between the Brenner route and the shorter Gotthard route. The German Federal Railways, to attract this traffic to the Brenner route, which involves transit through Austria and Western Germany, decided recently to refund to Italian exporters consigning fruit *via* Brenner, the entire difference between freight charges *via* Brenner and *via* Gotthard.

### Higher Fares

The Italian Government Central Price Fixing Committee has approved an increase in fares, except in the case of single fares for distances of up to 125 miles. Varying with mileage, increases range from 5 to 8 per cent.

## SWITZERLAND

### Future Electrification

Electric traction was introduced on the 25-mile standard-gauge Winterthur-Bauma-Wald (or Töss Valley) line, in north-eastern Switzerland, on October 7, with the introduction of the winter timetable. Advantage was taken of electrification works to replace three old wrought-iron bridges, which would not have been able to support the weight of electric locomotives, by one steel and two reinforced-concrete bridges. All station buildings have been modernised and partly reconstructed, and some passing loops have been lengthened. All points throughout the line are power-operated and colour-light signalling has been installed.

### Tram-Type Seating for Coaches

Tram-type seating has been experimentally adopted in some new third-class suburban coaches working in the Zurich area, so as to increase passenger capacity. The coaches are of all-steel lightweight construction and were built by Schlieren Wagons-Fabrik. Each coach seats 90 passengers with standing room for 50. The tram-type seating accommodation is that of Zurich trams with the seats arranged transversely, two seats on either side of a centre gangway. The seats are not reversible, as reversible seats are said to require more space, but all seats on one side of the gangway face the front of the vehicle and all seats on the other side face the rear end.

## FRANCE

### Steel Coaches

A report to the Ministry of Public Works on the accident to the Basle-Calais express at Sanry-sur-Nied, near Metz, on August 24, when 21 passengers were killed, states that fortunately the three wrecked coaches were built of steel, otherwise the fatalities would probably have exceeded 100. In commenting on this fact, the journal *Le Monde* says that by December, 1954, it is hoped there will be no more wooden coaches in use on main lines, except for supplementary trains for holiday traffic.

During the war and since, in ten years, the S.N.C.F. has received only 310 steel coaches, but in the last two years the construction of metal coaches has been accelerated. Of 5,500 coaches in

main-line service on January 1, 1950, 4,258 were metal.

During 1950 and 1951, 280 metal coaches were received, and in addition 431 old coaches had been reinforced with steel frames. By January, 1952, it is expected that only five to six hundred wooden coaches will be left in regular main-line service.

New coaches on order totalled 200 in 1950 and 150 in 1951. Deliveries will begin in 1952 and end in 1953. Cost of metal coach construction is high. In 1948 it was fr. 20,000,000 (about £20,000) and in January, 1950, fr. 25,000,000. New contracts will probably run still higher, due to increased costs of labour and raw materials, particularly steel.

### Railway Wage Increase

The National Railways have decided to propose a wage increase for railwaymen of 12 per cent., subject to Government approval. This would raise expenditure by about fr. 27,000 million a year, which may necessitate increases in charges, or a special Government subsidy.

### Higher Rates Refused

After the press had reported that the S.N.C.F. and the Ministry of Public Works were planning to increase railway fares by 5 to 6 per cent. and freight rates by 12 per cent. the Government issued an immediate denial. It refused all increases in railway tariffs on the ground that higher charges would adversely affect the entire economic life of the country.

Further, the Government statement said that higher rates would cause a decrease in receipts whereas statistics show that railway traffic has increased 15 per cent. in the last three months. Authoritative sources state that in compensation for higher costs of coal, steel, and the increase in wages, the Government will probably increase the grant to the S.N.C.F. at the end of the year by some fr. 15,000 million (about £15,000,000).

The French Cabinet, on the proposal of M. Antoine Pinay, Minister of Public Works & Transport, has decided to lay before the National Assembly again the Bill for the reorganisation of the rail and road transport system. The Bill had been under discussion in the previous Parliament for several months.

## JUGOSLAVIA

### Sleepers for Italy

In accordance with the provisions of a new protocol recently concluded for the extension of the Jugoslav-Italian trade agreement of August 4, 1949, by another year as from August 3, 1951, Jugoslavia is to supply to Italy 200,000 wooden sleepers during the next year.

## HUNGARY

### Budapest Underground

From a recent report from Moscow it appears that the preparatory work on the new underground railway in Budapest is approaching completion and that the actual building of the two diagonal lines concerned is to be begun shortly.

Machinery for the constructional work and materials has been delivered from Moscow and Leningrad, and engineers formerly engaged on construction of the Moscow underground are assisting the Hungarian engineers and technicians in completing schemes, organising the work, and using the plant and machinery imported from U.S.S.R. The western terminus of the West-East line, near the People's Stadium, is under construction. The line will be five miles long and traverse the whole of Pest as far as the Eastern Station of the State Railways, whence, turning south, it will be taken under the Danube and connect with the Southern Station of the former Danube-Save-Adria Railway, in Buda.

The new underground, the first line (West-East) of which is to be completed by 1955, according to the report, is to be built on the principles of the Moscow underground. The first underground railway in Budapest was opened in 1896 and it runs north-east from the centre of the City to the Town Park. The original rolling stock is still in use.

## WESTERN GERMANY

### Connection with Holland Reopened

The international connection between Ihrhove, on the Münster-Emden line, and Groningen (*via* Weener and Nieuwe-Schans) was reopened to goods traffic on October 8, after repair of bridges destroyed during the war. The line links N.W. Germany with the Dutch provinces of Groningen, Friesland, and Drenthe, and before the war traffic between the southern provinces of Holland and North Germany was routed this way.

## IRELAND

### New Facilities at Dun Laoghaire

A model of a two-storey structure which it is proposed to erect on the eastern side of the pier at Dun Laoghaire has been inspected by officials of British Railways and other interested parties.

The inadequacy of the existing facilities was brought into prominence during the tourist season and discussed at a conference convened by the Minister for Industry & Commerce (see our August 24 and 31 issues). It is understood that the idea as conveyed by the model, made by engineers of the Board of Works in Dublin, was accepted as a possible solution.

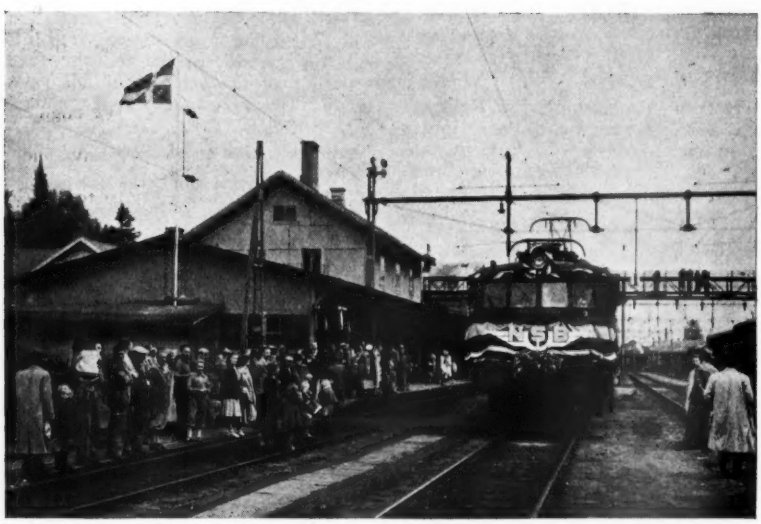
The question of times and schedules for boats and trains has also been reviewed, but it will be some time before a final decision is reached. Plans for the pier also include extra staff, especially at weekends.

### Turf-Burning Locomotives

The first Coras Iompair Eireann locomotive adapted for the use of turf (peat), instead of coal, as fuel will shortly undergo its trials. Experiments at the C.I.E. works at Inchicore, Dublin, have been satisfactory and have raised hopes that it may be possible to run locomotives burning only turf, which can be produced locally comparatively cheaply. This would result in a considerable saving of coal which is costly and restricted.

During the war some turf-burning locomotives were in use in Ireland but there were drawbacks, including the large storage space required, which made its use as a fuel unsatisfactory.

## Electrification in Norway



*The inaugural electric train from Oslo, at Charlottenburg, Norwegian State Railways (see article in our October 5 issue)*

# Locomotive Modernisation in the Argentine

*Improving engine performance capacity to cope with increase passenger and freight traffic and heavier loads*

*By D. S. Purdom*

*Formerly Chief Mechanical Engineer, General Roca Railway*

ON taking over the Mechanical Department of the Ferrocarril Nacional General Roca (formerly the Buenos Ayres Great Southern Railway) in 1950 the writer was faced with the difficult problem of providing a substantial increase in motive power for passenger and fast freight traffic on the main lines. A general increase in the standard of living among the working classes had brought about a large increase in the number of long-distance travellers and particularly to and from seaside resorts and tourist centres during the summer. At the same time the Argentine lake district in the Bariloche region was attracting an ever-growing stream of tourist traffic.

Bariloche is 1,045 miles from Buenos Aires, and, as from January 1, 1949, the General Roca Railway took over the working of the 492 miles from Patagones to Bariloche from the former State railway. This transfer involved the handing over of the only motive power available on that line, which consisted of eighteen 4-6-2 tender engines built in Germany 30 years ago, with two 2-10-2 tender engines built by Baldwins a few years later. The latter are powerful units, with two cylinders 22 in. × 26 in. and coupled wheels 4 ft. 3 in. dia., and a tractive force at 80 per cent. boiler pressure of 39,280 lb. They are used exclusively on the steeply graded section of 113 miles between Ing. Jacobacci and Bariloche.

### Tourist and Fruit Traffic

In addition the summer tourist traffic coincides with the fruit harvest in the Rio Negro Valley which now involves the transport of anything up to 200,000 tons of fruit over 700 miles to Buenos Aires in ventilated wagons formed into special trains timed at approximately passenger train speeds. This traffic is continually on the increase as development of the region proceeds.

The timely arrival of thirty Class "15B" two-cylinder 4-8-0 mixed-traffic locomotives built by the Vulcan Foundry Limited commencing early in 1949 prevented a complete strangulation of the services. These machines have done excellent work on all kinds of trains and have proved a fine example of versatility combined with dependability. But their acquisition did not solve the problem completely, as the increased traffics had exceeded all previous calculations.

Faced with the impossibility of immediate relief through the acquisition of additional new units, and having reduced the number of stopped engines to normal proportions, there remained only one other solution, namely, the modernisation of some of the older and less powerful locomotives with the idea of stepping up their performance capacity, thereby relieving something of the strain on the more modern and powerful classes. In the comparatively short space of two years a good deal was achieved, and as a record of the dependability of the work of the British locomotive industry it is of interest to outline what was actually done.

From 1905 to 1908 the General Roca Railway purchased 114 two-cylinder compound 4-6-0 tender engines known as Class "12." In their original form they had cylinders 19 in. high-pressure and 27½ in. low pressure × 26 in. stroke 5 ft. 8 in. coupled wheels, 200 lb. working pressure, and a tractive effort at 80 per cent. boiler pressure of 19,300 lb. All were superheated from 1923 onwards when fitted with new high-pressure cylinders with piston valves. In their earlier days these engines were the backbone of the passenger services and were also efficient machines for all but the heaviest goods and cattle trains.

With the increase of train weights and speeds they were gradually relegated to less important work, and as time went on, the position was reached when there was not sufficient work within their capacity to keep them fully employed.

During the regime of Mr. J. W. H. Rea as Chief Mechanical Engineer, when an extensive programme of modernisation of older classes was carried out, ten of these engines were rebuilt between 1933 and 1937 as simple engines and fitted with Gooch motion in place of the original Stephenson type. As rebuilt, these engines formed an extremely useful class known as "12F," and, with their tractive effort increased to 22,100 lb., were able to handle fruit and oil tank trains in the Río Negro Valley most efficiently. Mr. Rea afterwards used the boilers from a further fifteen Class "12" engines to mount on new chassis purchased from the Vulcan Foundry Limited in 1938. This formed a modern and useful mixed-traffic 4-6-0 engine known as Class "12G."

At the end of 1948 there were still 85 Class "12" locomotives in service, but with the services called for at that time, their mileage and general utility was quite inadequate. Therefore it was considered that some means of modernising these units should be devised. The idea of adding to the Class "12F" by converting as in 1933 was attractive, but the workshops could not tackle the manufacture of the Gooch motion, even if suitable material had been available, but when the superheating of the Class "12" was carried out, the new high-pressure cylinders were purchased in England, and, as was usual then, a useful reserve of spare cylinders was included. The majority of these spare cylinders were still available after more than 20 years, and, being of symmetrical design, could be used for either right or left hand.

A Class "12" engine in shops with a broken low-pressure cylinder was fitted instead with one of these spare cylinders and the eccentrics and existing valve gear altered to suit. New steam and exhaust pipes were fitted in the smokebox, and with these small modifications the engine was converted to the simple type.

### Improved Steaming Qualities

The new blast pipe made of cast brass was specially designed to improve the steaming qualities, and in service the engine quickly demonstrated its ability to handle traffic normally worked by the Class "12F" simples, and by the larger Class "12A" mixed-traffic 4-6-0 engines. Further conversions were put in hand as opportunity offered, and by the end of 1950 eight units had been dealt with, thus forming a valuable addition to second-line strength and permitting the stepping up of other engines to more important duties.

As an example of their capabilities engine No. 3207 was recently pressed into service at Empalme Lobos to take over a main-line train on which the engine had failed. With this train, made up of 62 axles and weighing 573 tons, 14 min. were gained on schedule over the 144 miles to Olavarrfa, including three booked stops. While the average speed of just under 35 m.p.h. is not high by British standards, this run was made over a single-track line involving numerous crossings, where station working is usually slow on account of the parcels and perishable traffic handled.

For veterans 45 years old the performance put up daily by these engines is most satisfactory, and, whereas in their original form their monthly mileage was round about 1,800 to 2,000, this figure now varies from 5,000 to 6,000 miles. Further study of ways and means for freezing engines for heavier duties showed that four or five useful 2-6-0 mixed-traffic tender engines were being absorbed on certain branch-line services where their low axle load made them suitable, but where their useful work was far below that of others of the same class on the main lines. The release of the former was an attractive proposition depending on the provision of suitable substitutes.

There were still in existence 18 survivors of a class of two-cylinder coal-burning compound 2-6-0 engines built in 1901, most of which were laid aside for scrapping, there being virtually no services for which they were worth

lighting up. Five of these semi-derelicts, with boilers in reasonably good condition, were converted to oil firing, the cabs being modernised to bring them up to the standard now demanded by the footplate staff. They were drafted to the branches referred to already and the more modern 2-6-0 engines were thus available for strengthening the motive power on main-line services. In the case of two other old 2-6-0 locomotives of 1901 vintage the work was taken a stage further. Both arrived in shops with the low-pressure cylinders broken.

### Shortage of Cylinders

There were no spare low-pressure cylinders in existence, and no pattern from which they could be cast, and the cost of making the latter could not be justified. The cylinders being of the slide valve type, right and left hand, even a spare high-pressure or left-hand cylinder could not be applied.

A cylinder of suitable size, 18 in. × 26 in., cast many years before, for a class of 2-6-2 tank engines, and subsequently fitted with piston valves, was found in stock, and applied by patching the frame suitably, modifying the valve setting and the smokebox piping, thus producing what has subsequently turned out to be a useful little 2-6-0 simple engine. In the second case a low-pressure cylinder was taken from another engine with a boiler in bad condition, and a cast-iron hollow bush applied to reduce the diameter from 26 in. to 18 in. This, with adjustment of the motion and new steam and exhaust pipes, has produced a second simple of this class.

Regarding the converted Class "12" compounds, the layout of the blast pipe and chimney proved so successful that it was decided to try it out on another somewhat similar class, namely, the Class "12A" two-cylinder simples with 6-ft. coupled wheels to which 32 were built as compounds in 1907 and 1908 and converted to simple between 1922 and 1926. As first converted these engines were not satisfactory and they compared unfavourably with a later class of simples of similar dimensions and theoretical tractive effort built in 1912.

During 1934-1939 an attempt was made to boost their performance by fitting them with Gooch motion and improved valve setting, and, while this produced some improvement, they were still inferior to the Class "12D." The latter class is rightly considered one of the best built for the former B.A.G.S.R., and especially after a modernisation of cylinders and valve gear during the term of office of Mr. Rea, and any step tending to multiply units of similar capacity would be of great advantage. The fitting of smokebox arrangements similar to the converted Class "12" to the Class "12A" has solved this problem and has added materially to the total first class motive power.

In so far as goods engines are concerned, the sixty-six Class "11" and "11A" two-cylinder compound 2-8-0 tender engines built between 1903 and 1908 have gradually become outmoded in their original form, and, although used on many secondary services, they make a contribution in general far below what should be obtained from engines of their main dimensions.

In the early days of this century the two-cylinder compound engine was considered ideal for the long, slow hauls over the more or less level lines of several of the larger railways in the Argentine, and there is no doubt that at that time the character of the services was most favourable for this type of motive power, which was most efficient and economical.

Loads today have been increased and at the same time the long lengths of single line with limited crossing facilities have demanded increased speeds for all kinds of trains so as to prevent saturation of the tracks. The economy derived from the use of two-cylinder compounds as such has therefore had to some extent to take second place in the general outlook.

Three Class "11" and "11A" compounds have recently been converted to simple with good results. As in the case of the Class "12," a number of spare high-pressure cylinders, purchased at the time of superheating, were applied to these engines, and thus the question of materials presented no problem. In this case also, the only modifications necessary, apart from changing the cylinder on one side, were the valve gear adjustments and new steam and exhaust pipes. The gradual conversion of the remainder of these classes will constitute a useful reinforcement of the motive power required for the increasing volume of main-line goods traffic.

In the case of the more modern types of locomotives the General Roca Railway acquired in 1938 twelve two-cylinder 4-6-2 passenger locomotives of modern design and generous proportions which nevertheless did not quite come up to expectations, especially as regards their capacity for speed. The 30 new 4-8-0 engines, Class "15B" received recently, which were referred to earlier in this article, are provided with the same boilers and cylinders apparently identical with the twelve Pacifics, yet with coupled wheels of only 5 ft. 8 in. dia. compared with the 6-ft. wheels of the latter, they quickly showed themselves to be far speedier machines.

### Streamline Exhaust Passages

A close examination of the drawings of the cylinders of both classes showed that the exhaust passages of the 4-8-0 engines were much more streamlined and gave a greatly superior path for the steam, this being the only essential variation between the two designs. Two cylinders of the new type were therefore cast in the shops and fitted to one of the Pacifics during overhaul.

The former trouble has been eliminated and the engine has frequently run freely up to 70 m.p.h. with trains of 400 to 450 tons, being now used with every success turn and turn about with the three-cylinder Pacifics Class "12E," which are allocated to all the top link services.

Nowhere has the truth of the proverb that "necessity is the mother of invention" been more proved than on the Argentine railways since 1939, not only in cases such as those described here, but in many other directions. The examples quoted also show once more the basic soundness of British workmanship and design, and that irrespective of age such units can be converted to a state of greater efficiency by the application of modern principles which have subsequently been developed in the same school.

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BRITISH ROAD SERVICES SAFETY PRECAUTIONS.—The Road Haulage Executive announces that in the interests of road safety all new vehicles of British Road Services are being fitted with two rear red lamps and that the electrical circuit for these is so arranged that the failure of one lamp does not affect the other.

AMERICAN TRAVEL AGENTS VISIT BRITAIN.—About 200 leading travel agents from America recently visited Britain to assess its tourist attractions. The visitors are delegates to the annual convention of the American Society of Travel Agents to be held in Paris between October 21 and 27. Eight conducted tours were organised by the British Travel & Holidays Association to cover as much of Great Britain as possible.

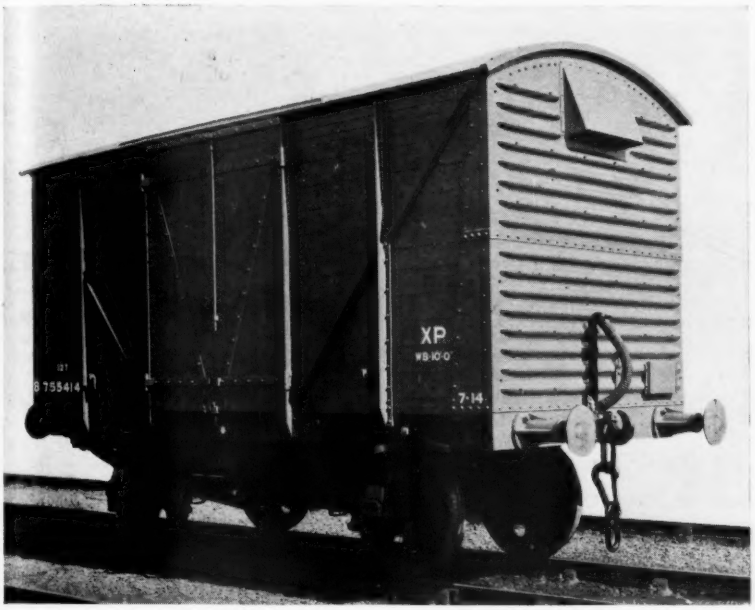
LEOPOLDINA PROGRESS.—The taking over of the Leopoldina Railway Co. Ltd. is reported to have made rapid progress in the last few days. Title deeds which had been missing and which were holding up final purchase details have now been handed to the Brazilian Government by railway officials. They are in the hands of the General Attorney of the Ministry of Finance, who is expected to pass them on to the Minister of Finance personally in the near future.

MECHANICAL HANDLING EXHIBITION & CONVENTION.—The third Mechanical Handling Exhibition & Convention to be organised in Great Britain will be held at Olympia, London, from June 4 to 14, 1952. The exhibition will occupy about 250,000 sq. ft. and will be the largest of its kind in the world. There will be nearly 200 exhibitors, whose products cover every type of mechanical aid, including pallets, trucks, cranes, aerial ropeways, overhead conveyors, belt conveyors, elevators, wagon tipplers, winches, power units, chains, gears, and controls. The exhibition is being organised by *Mechanical Handling*.

BRITISH STANDARD FOR ATMOSPHERE POLLUTION GAUGES.—A new British Standard (B.S. 1747:1951) has been prepared to aid the work of combating atmospheric pollution. This covers the construction, installation, and use of the deposit gauge for the collection and measurement of atmospheric impurities, deposited by their own weight or with the assistance of rain. The apparatus and methods of analysis described are in accordance with recommendations based on the experience of the Department of Scientific & Industrial Research and of local authorities. Copies may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, price 2s. 6d.

# British Railways Standard Wagons

*A new 12-ton covered ventilated goods van for general merchandise traffic*




WIDE standardisation of wagon details has been practised in this country for many years under the guidance of the Railway Clearing House. This practice has also covered a limited range of complete vehicles intended mainly for private owners' use.

The wagon building programme of British Railways for 1951 will see the introduction of more new standard wagon designs, which have been worked out in conjunction with the Wagon Standards Committee, prepared to incorporate the best practice of the former regional designs and features required for the traffic offered.

In this programme 34 wagon types have been standardised and one of the first to appear is a 12-ton covered goods van for normal merchandise traffic. This has been designed at Swindon to the requirements of Mr. R. A. Riddles, Member for Mechanical & Electrical Engineering, Railway Executive, and 3,000 of these vans are being built this year at Wolverton by the L.M.R. Though designed with a riveted underframe and softwood body, alternative provision can be made for a welded underframe and steel or plywood body.

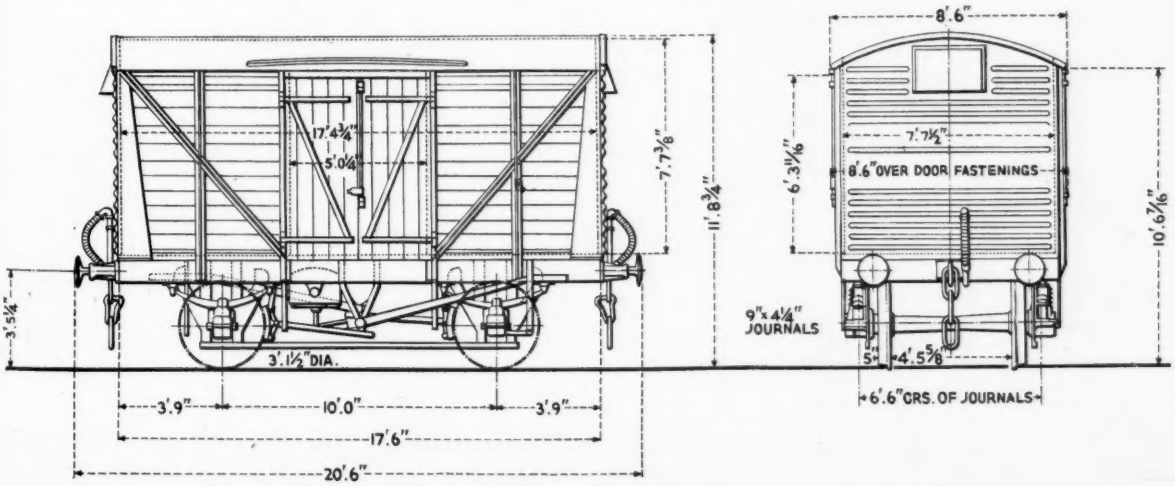
The diagram below shows the general layout of the van which is 17 ft. 6 in. long over headstocks with a 10-ft. wheelbase. Its tare weight is 7 tons 11 cwt., and its load 12 tons with a capacity of 940 cu. ft. It is mainly of riveted construction, the underframe and body members being of B.S. rolled-steel sections, while the body end is of steel plate pressed to a corrugated section, formed with a wide flange bolted to the side quarters. This end plate is in two portions, and the upper one, $\frac{1}{8}$ in. thick, and the lower, $\frac{3}{16}$ in., are riveted to form a substantial end.

Standard type spindle buffers are fitted, with the alternatives of rubber or steel coil springs fitted behind the headstocks, and short drawgear with either rubber or rubber and steel springs. Instanter couplings are fitted, allowing either long or short connections; this type of coupling has now been standardised for almost all vacuum-fitted stock for future construction in place of screw couplings.

### Brake Gear

Brake gear consists of an 18 in. dia. vacuum brake cylinder for fast freight working and the Morton type hand-brake operated from either side of the wagon. Both hand and power brakes are applied through one brake block per wheel only. Solid rolled-steel wheels 3 ft. $1\frac{1}{2}$ in. dia. and axles with 9-in. × $4\frac{1}{4}$-in. journals are fitted with cast-iron axleboxes of the spigot type, or, alternatively, open fronted axleboxes of fabricated design.

The bodies are sheeted in softwood, a double layer of $\frac{4}{5}$-in. boards on the quarters, with a single thickness lining inside the steel ends. Hardwood rails are fitted on the side quarters on top, bottom, and intermediate portions. The floor is of $2\frac{3}{8}$-in. boards and the roof of $\frac{7}{8}$-in. boards covered with roofing canvas is laid on hardwood hoopsticks bolted to the steel carlines.




*Principal dimensions of British Railways standard 12-ton covered goods wagon*

# Recent French Steam Locomotive Practice—2*

*Widespread use of eight-coupled machines for mixed-traffic working, and justification of compounding*

AS there is often considerable similarity between operating conditions on British and French main lines, except that heavy freight traffic in France is carried in continuously-braked trains, it may be profitable to consider the extent to which recent French developments in steam traction might be applied here.

The extensive use of powerful 2-8-2 type locomotives for fast freight and heavy passenger traffic in France contrasts with our continued use of 4-6-0s and to a lesser extent 2-6-2s on similar duties. With the exception of Churchward's Class "47XX" 5 ft. 8 in. 2-8-0s, which for many years have done good work on fast freight trains and on a limited amount of heavy passenger work, no serious attempt seems to have been made to introduce a large eight-coupled mixed-traffic type since the Hughes four-cylinder simple 2-8-2 design prepared in 1924 and the four-cylinder compound design prepared by Fowler in 1926 for the L.M.S.R.

It would seem reasonable to assume that, with the general increase in passenger train weights and in the number of fast freight services since these designs were prepared, such locomotives would be of considerable value under present-day conditions with their appreciably increased adhesive weight and boiler capacity. The new British standard 4-6-2 locomotives will probably undertake much fast freight working, and it will be interesting to see how they perform with heavy trains when starting or recovering speed on heavy gradients and in bad weather conditions, in view of the slipping propensities of most existing Pacific types in this country in such conditions with any but the most expert handling.

### Mikados on Passenger Services

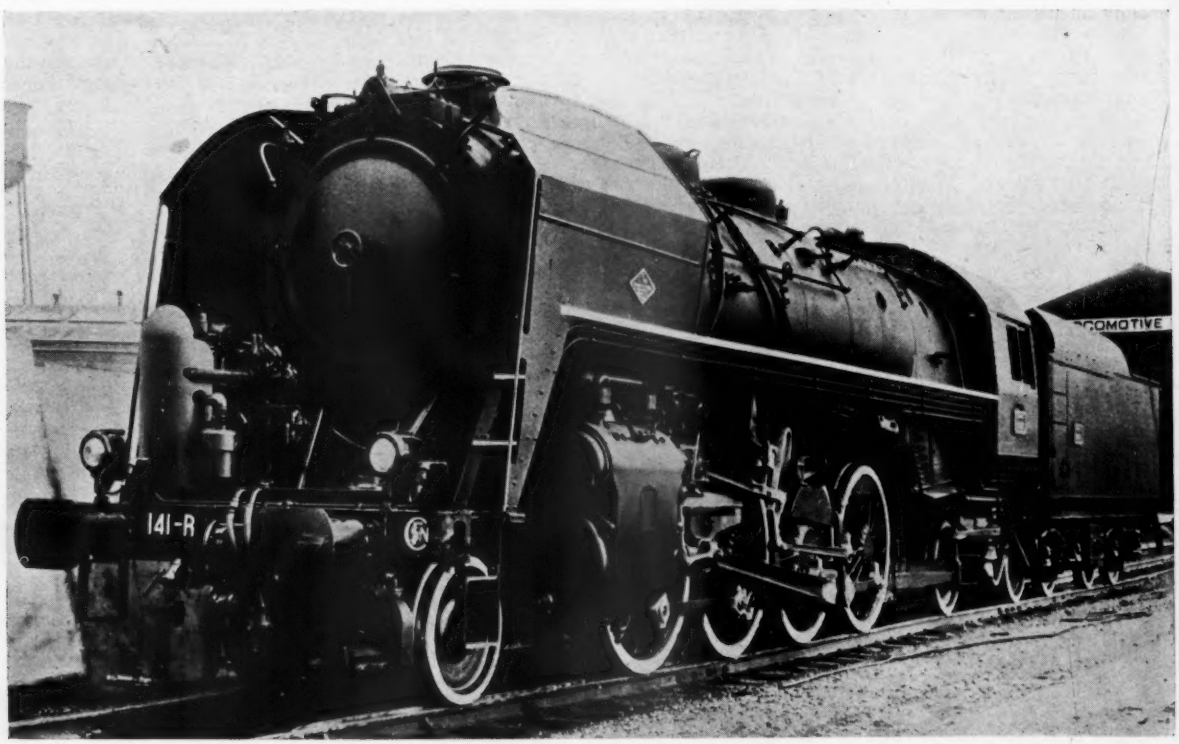
The successful running of large eight-coupled mixed-traffic locomotives on heavy passenger trains over severely-graded and sharply-curved routes in France suggests that there is little limitation in their use on these duties. In particular there is the general use of the "141-R" 2-8-2s on fast passenger workings between Marseilles and Nice, and over the Le Mans - Brest and Quimper main lines of the Western Region. The "141-P" 2-8-2s are also extensively used on heavy passenger trains, and the pre-war running of the Chapelon-rebuilt 4-8-0s with heavy trains over the heavily-graded and sharply curved Limoges - Montauban section is another example.

The continued use of compounding in French express locomotive design appears to be justified by the high level of performances and by the more economical working of modern compounds compared with similar simple machines, as with the Nord 4-6-4 locomotives. Sir William Stanier quoted the overall thermal efficiency of the Chapelon rebuilt 4-8-0s, on an i.h.p. basis, as 12·8 per cent., compared with 10·8 per cent. for the "Coronation" 4-6-2. The successful introduction of the supplementary superheater to increase the temperature of steam admitted to the l.p. cylinders of compound locomotives may enable the already high thermal efficiency of such locomotives to be appreciably increased.

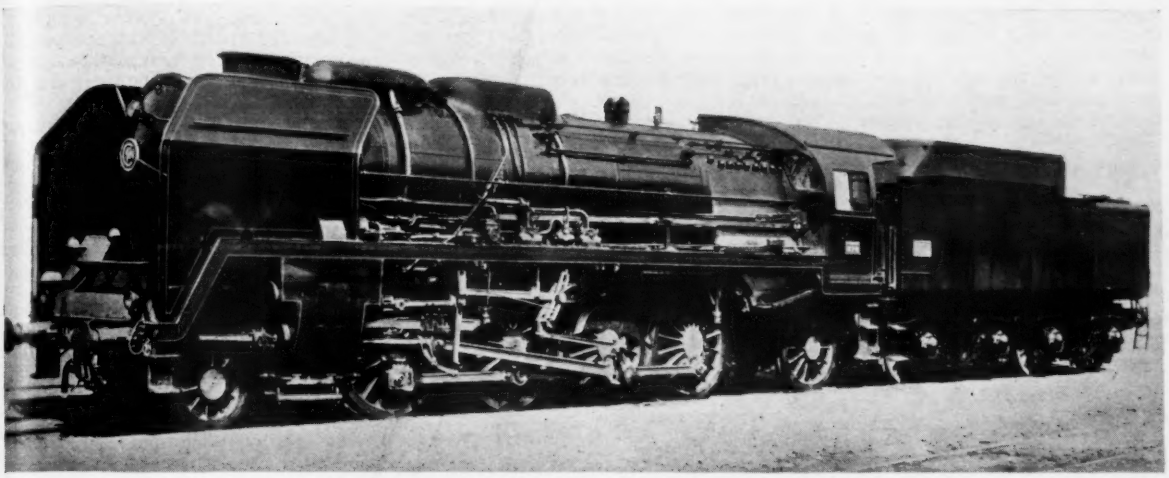
In addition to the savings in fuel and water resulting from the higher thermal efficiency of compound locomotives, their ability to produce a higher power output from a given boiler capacity must be of considerable value where poor fuel is used.

The principal objection raised to the construction of large compound locomotives in this country, apart from slightly increased first cost, is the difficulty of accommodating l.p. cylinders of adequate size, except by reducing crank web thickness and journal width to dimensions which are regarded as inadequate for satisfactory service with

* Part I appeared in our issue of October 12




*Mixed-traffic Class "141-R" locomotive*

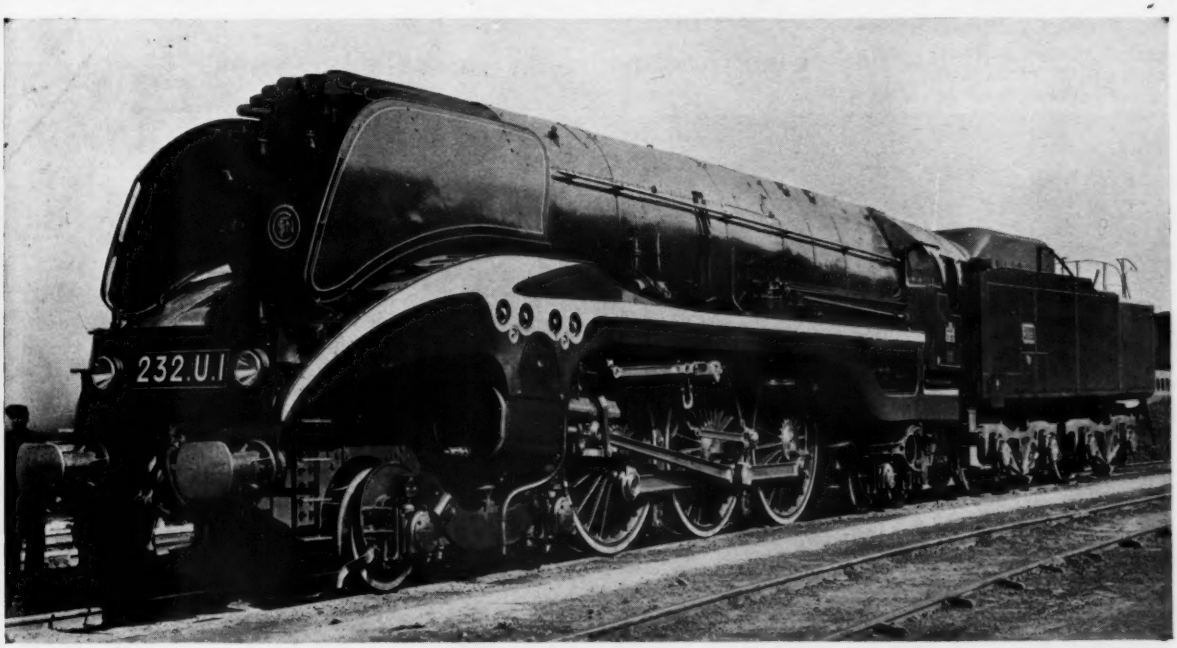


*Mixed-traffic "141-P" compound locomotive*

high mileages between repairs. Whilst the two larger de Glehn 4-4-2 compounds of the Great Western Railway had inside l.p. cylinders of 23⅝ in. dia. this argument is no doubt valid for large modern locomotives with the de Glehn cylinder arrangement, in which the l.p. cylinders are mounted between the frames.

In the most recent French four-cylinder 4-6-4 and 4-8-2 express locomotives the l.p. cylinders are outside the frames, a reversal of the de Glehn arrangement which had been almost universal for French compound locomotives for many years. This reversal is due partly to the use of l.p. cylinders of increased dia. and partly to the desirability of providing crank webs and journals of ample dimensions for the development of high power outputs over lengthy periods between repairs. The latest 4-6-4 compound, No. 232-U.1, has crank webs 5·35 in. thick, and journals 10·25 in. wide. These considerations applied with even more force to the rebuilt three-cylinder compound 4-8-4 locomotive No. 242-A1, the inside h.p. cylinder of which has frequently developed 1,900 i.h.p. for lengthy periods without signs of fatigue in the crank webs. The success of the three-cylinder compound drive used in this locomotive resulted in its adoption for the new 4-6-4, 4-8-4, 2-8-4, and 2-10-4 designs already mentioned.

It may, therefore, be said that the use of outside l.p. cylinders overcomes the objections raised to engines with the de Glehn cylinder arrangement, although the British loading gauge does not permit the use of l.p. cylinders as large as those of the S.N.C.F. 4-6-4 and 4-8-4 locomotives, which are of 26¾ in. dia. The width over cylinders of the 4-6-4 compound is 9 ft. 7 in., about 8 in. greater than the comparable maximum dimension allowed for general use over British main lines, which would appear to limit the dia. of outside cylinders to 22½ in. The use of 22½ in. × 30 in. outside l.p. cylinders would, however, give a cylinder volume 77 per cent. of that on the French 4-6-4, or 71 per cent. of that on the 4-8-4. It seems reasonable to assume that, if boiler pressures and cylinder ratios identical with those of the French engines were used, performances related in these proportions to those of the French types could be obtained. Thus, it should be possible to build compound express locomotives for service on the British main lines




*New 4-cylinder compound 4-6-4 express passenger locomotive, No. 232-U1*

capable of developing nearly 4,000 i.h.p. or about 2,700 equivalent d.b.h.p. continuously. For a heavy mixed-traffic design the l.p. cylinder dimensions suggested would produce 92 per cent. of the l.p. cylinder volume of the Chapelon 4-8-0s, with 5 ft. 11 in. coupled wheels, which have developed 3,000 equivalent d.b.h.p. for lengthy periods. The practicability of the outside l.p. cylinder dimensions proposed appears to be confirmed by the provision of outside l.p. cylinders 22¼ in. × 30 in. for the three-cylinder compound 4-6-0 locomotive designed for the L.M.S.R. by Sir Henry Fowler in 1925.

Another objection frequently raised to the building of compound locomotives in Britain is that availability and mileages between repairs are decidedly inferior to simple-expansion locomotives of similar size. It may, therefore, be of interest to compare available information on the relative mileages of British and French express types.

### Gresley and Collin 4-6-2s Compared

Eight of the original Gresley 4-6-2s, built in 1922-23, averaged 55,000 miles per locomotive annually during their first ten years. Ten Nord "Super-Pacific" locomotives, designed by Monsieur Collin and built in 1931, averaged 46,000 miles per locomotive annually between entering service and the outbreak of war in 1939. A number of the Chapelon-rebuilt 4-6-2s, working on the Tours-Bordeaux main line before it was electrified in 1939, recorded annual mileages of 62,000; during the four months of the summer timetables these locomotives frequently covered 25,000 miles, and it was not uncommon for them to make a return trip from Tours to Nantes after one from Bordeaux to Tours, making a daily mileage of 460.

Turning to post-war conditions, annual average mileages for the Southern Region "Merchant Navy" locomotives were recently quoted as 50,321 per locomotive and those for the smaller "West Country" and "Battle of Britain" classes as 39,665. Mileage figures have also been quoted for the L.M.S.R. Stanier 4-6-2 locomotives, the best average annual mileage of which was given as 67,000 miles for 45 locomotives. Average weekly mileage figures of between 799 and 1,561 have been quoted for six modern British types on the basis of twenty locomotives of each type, the mean of these averages being 1,050 miles. Assuming 48 weeks running and four weeks workshop repairs annually the average annual mileage of the six types works out at 50,400 miles per locomotive. The locomotives for which these mileages were given are the Stanier four-cylinder 4-6-2, Collet four-cylinder 4-6-0, Gresley three-cylinder 2-6-2, Bulleid three-cylinder "Merchant Navy" 4-6-2, Gresley three-cylinder 4-6-2, and Gresley three-cylinder 4-6-0 types.

In comparison all French compound Pacific locomotives on regular rosters average 4,400 to 5,000 miles a month, including running repairs equivalent to average annual mileages of 48,400 to 55,000, allowing four weeks for workshop repairs. These average annual mileages are given for complete series of locomotives and also apply to the 4-6-4 locomotives of classes "232-S" and "232-R," and the thirty-five compound 4-8-2s of Class "241-P." Est type 4-8-2 four-cylinder compounds engaged on certain rosters average about 5,600 miles a month, equivalent to about 62,000 miles a year. The latest 4-6-4, No. 232-U.1, is regularly covering 5,600 to 6,100 miles a month, equivalent to between 62,000 and 67,000 miles a year. The one-crew system is almost universal for French express compound locomotives, which makes the attainment of these mileages the more creditable. The T.I.A. water treatment process, now universal in France, also helps.

### Average Mileages

From available data it would seem that the average mileages of French compound express locomotives are not generally inferior to those of British simple-expansion locomotives, and objections to the use of compound locomotives are difficult to sustain. The satisfactory handling of a compound, especially one having independently controlled h.p. and l.p. valve gears, requires greater technical skill than a simple-expansion locomotive. The rebuilt 4-8-4, the drive of which has been selected as the prototype for compound construction in France, operates on the Smith system as successfully used in Britain nearly 50 years ago.

There would be no insuperable difficulty in giving instruction to drivers and shed staff with a sound knowledge of the theory and practice to locomotive construction. It is possible to build satisfactory compound locomotives in which the ratio between h.p. and l.p. cut-offs is fixed, as in Sir Henry Fowler's 4-6-2 and 2-8-2 compound designs. The successful P.L.M.-type 2-8-2, 4-6-2, and 4-8-2 locomotives have a fixed ratio between h.p. and l.p. cut-offs, which does not appear to impair efficiency; one of the modernised P.L.M. 4-6-2 compounds developed 3,032 h.p. at the wheel rims at 62 m.p.h. and 2,924 h.p. at 75 m.p.h., with fuel consumption rates of 1·94 and 1·96 lb. per h.p. hr, at the wheel rims.

*(Concluded)*

## "Britannia" Class Locomotive on the "Golden Arrow"


*Messrs. John Elliot, S. W. Smart, C. P. Hopkins, V. M. Barrington-Ward, and R. A. Riddles at Victoria Station on October 11, before the inaugural run of the "Britannia" class locomotive "William Shakespeare" on the "Golden Arrow"* (see paragraph on page 446)

# Railway Expansion in Yallourn District, Victoria

*Important works in connection with future development of the Latrobe River Valley*

*Melbourne-Bairnsdale train hauled by Class "A 2" 4-6-0 exchanging staff at Hernes Oak*

AN account of the regrading, relocation, and doubling of a section of the main Gippsland line of the Victorian Railways from Longwarry, 51 miles from Melbourne, to Yarragon appeared in our April 21, 1950, issue. Its purpose is to facilitate the passage of frequent and heavy brown coal and briquette trains over what was a difficult section of single track, and it was the forerunner of other railway developments now taking place or to take place further east at Yallourn and its environs.

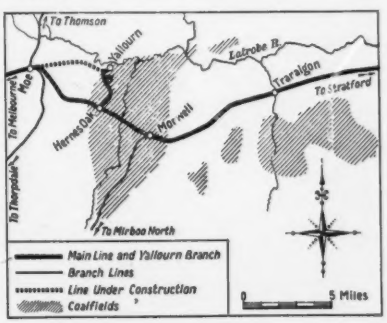
The State Electricity Commission is the semi-government authority conducting the great electrical undertaking of Victoria. Its objects are threefold: first, the winning of coal; secondly, the generation of electric power; and thirdly the manufacture of briquettes. At Yallourn a large brown-coal deposit is worked extensively by open-cut methods; it is one of the great brown-coal deposits in the Latrobe River Valley of Gippsland.

### Extent of Coalfield

This particular deposit covers from 30 to 40 sq. miles and is estimated to contain 6,000 million tons of coal. It includes the thickest seam (800 ft.) of any type of coal in the world, and although 20,000,000 years old it is still regarded as young coal. So far only a portion of this deposit has been tapped.

The main Gippsland line cuts almost centrally across this coalfield, from a little west of the township of Hernes Oak to a point about a mile beyond Morwell. The single-track branch from Hernes Oak to Yallourn, about 2½ miles long, is also laid over portion of the coalfield. Intensive industrial development of this coal deposit is planned.

Coal winning operations at Yallourn are largely mechanical. Large dredgers excavate overburden and coal: the Commission's 90 cm. gauge electric railways and conveyor belts transport the coal to power station and briquette factory or, if intended for other places, to waiting Victorian Railways wagons. The object of briquetting brown coal is to provide a higher-grade fuel for power




*Lines existing and under construction in Yallourn district*

generation and also for industrial and domestic uses. In this process the coal is crushed, screened, passed through driers to reduce its moisture content, and subjected to intense pressure. Small, moulded blocks of hard, durable high-grade fuel are produced; they are carried by overhead conveyor belt to railway wagons outside the briquette factory. Loading is aided by sideways movement of these wagons after being run on to an electrically-operated traverser.

The Victorian Railways transport coal and briquettes over the 80 miles from Yallourn to Melbourne, and to other destinations. Because of the great and increasing demand this traffic is extremely heavy.

After leaving Yallourn the coal and briquette trains travel south over the branch to Hernes Oak, thence westwards towards the eastern slopes of the Haunted Hills where they encounter a stiff 1 in 50 gradient for about two miles. Having negotiated the ascent to the summit they then descend an equal distance into Moe; to this point they are generally double-headed. To improve operating conditions and avoid the steep grade between Hernes Oak and Moe a new line is being built, about five miles in length, running from Moe north-eastwards to Yallourn and well north of the existing line. The ruling gradient of the new line is to be 1 in 110 against up-traffic.

Earthworks are almost complete. Steel work for bridges is being fabricated, and a bridge where the Prince's Highway and the new line cross at Moe is also nearly ready. It will be seen that the new project when completed will form a rough triangle—Moe to Yallourn, Yallourn to Hernes Oak and Hernes Oak to Moe. The Moe-Yallourn direct line is also intended to prepare for the time when the Yallourn-Hernes Oak branch will have to be abandoned for coal winning, because, as pointed out earlier, it lies over the coalfield. However, until abandonment is necessary the present branch will no doubt be used for running empties into Yallourn and the new line for heavy loads outwards direct to Moe.

### New Marshalling Yards

New and enlarged marshalling yards have been constructed at Yallourn to allow trains to be despatched to Moe in almost the opposite direction to that now taken, and cope with expanding traffic in the future. They are laid out to give an almost straight run from the briquette factory to the point of departure. The line from North Yallourn open cut has also been diverted to converge on the new track at the north-western end of the marshalling yards for direct movement to Moe over the new route.

The goods yards at Moe are also to be re-designed as Moe will now become a junction for the new line; it is already the junction for two branches, one of which curves southwards to Thorpdale, about 11 miles, and the other (2 ft. 6 in. gauge) runs northwards into mountainous timbered country as far as Erica. Several narrow-gauge locomotives and other rolling stock are shedded at Moe. One locomotive used on the 2 ft. 6 in. gauge line is a Beyer-Garratt of the 2-6-0 + 0-6-2 type; this and one used in another part of Victoria are probably the smallest engines of this type at work in Australia.

*Construction of Yallourn-Moe direct line; Latrobe River on right*

In addition to developments at Yallourn the projected development of Morwell is of considerable size, and will change what has been previously an area devoted to agriculture into a great industrial centre. A new open cut is to be established south of the town and existing railway line. Two briquette factories are to be erected; with ancillary services, they are estimated to involve a capital cost of £19,000,000 at present price levels.

**Briquette Output**

A future briquette output of 1,200,000 tons a year is planned from these two factories; this, it is said, will fill a 16-ton railway wagon every five minutes for 24 hr. daily and will necessitate running a full train load of briquettes every three hours, apart from those running from Yallourn. Railways to be constructed near Morwell in consequence of this development include sidings to the State Electricity Commission stores area and the two briquette factories. Plans have also been prepared for a siding into the open cut section at Morwell for the Australian Paper Manufacturers Limited whose mills are some miles away. Negotiations on construction and conditions of operation are in progress.

The railway yards at Morwell are to be laid out anew and additional land is to be acquired for movement of goods and livestock into and from lorries. Overline road bridges are to be constructed at both ends of the station. Morwell will change from a quiet country junction into a busy industrial station.

An interesting question arises as to the fate of the section of line which crosses the coalfield between Hernes Oak and Morwell. Its present location would seriously impede coal winning. The working of such a large coalfield will take many years, and it is possible that in the distant future the line may have to be diverted either to the north or south of the coal deposit area. One proposal made is that a new line should be built from Yallourn, sweeping round the northern part of the coalfield, crossing the Latrobe River twice and then coming down in a south-easterly direction to Traralgon. Morwell would then be served by a new spur running northward from the town to the suggested deviation line.

Now, the Victorian Parliamentary Public Works Committee has reported that complete doubling of the main Gippsland line is essential to cope with the large increase of traffic planned by the State Electricity Commission. It considers that there will also be a steady increase in rail traffic from general industrial expansion in Gippsland, and advocates regrading, diverting and doubling the Dandenong-Longwarry and Yarragon-Morwell sections.

The present intention is that when doubling takes place a new single line shall be built between Moe and Morwell, but some distance south of the existing line, and much more easily graded. This will be used as the up line and the existing line will become the down line.

**Electrification**

It is also intended to electrify the main Gippsland line from Dandenong to Traralgon. Electrification is already in operation from Melbourne to Dandenong, the end of the suburban area. Much general planning for this was done by the Railway Department in 1949-50, and most of the major equipment was ordered, including the necessary wire, insulation and other materials for about 140 miles of single track. Some years must elapse before doubling is carried out. The new Moe-Yallourn line will also be electrified.

The development of the Latrobe River Valley may well extend over the next 50 years or more, and it is possible that further railway extension or alteration not at present foreseen may be necessitated.

*Line from North Yallourn converging on left on what will become New Yallourn-Moe line. In the centre are the new marshalling yards at Yallourn, with the briquette factory in the distance*

*Photos]* [*G. Bakewell*

PERMANENT "DESIGN REVIEW" EXHIBITS.—The Council of Industrial Design has received enquiries about the future of "Design Review" which showed at the South Bank site of The Festival of Britain more than 20,000 British products in a pictorial reference library. Though the exhibition has now closed "Design Review" has a long-term use and in due course some sections will be re-opened as a permanent service to industry and buyers,

# RAILWAY NEWS SECTION

## PERSONAL

Mr. S. H. Scholes, Assistant Regional Staff Officer of the London Midland Region, is retiring on October 27.

Sir Archibald Boyd, Managing Director of the Metropolitan-Cammell Carriage & Wagon Co. Ltd., left this country for Australia on the *Stratheden* on October 11. He will be leaving the ship at Fremantle and after visiting Western Australia, will travel to South Australia, Victoria, and New Zealand. He will then return to Sydney for New South Wales and later proceed to Queensland. Sir Archibald Boyd expects to be away until February, 1952.

Mr. John Elliot, Chairman of the Railway Executive, has accepted the office of President of the Railway Convalescent Homes for the year 1952, in succession to Lord Hurcomb, Chairman, British Transport Commission.

We regret to record the death on October 7, at the age of 77, of Dr. Anton Frederik Philips, President of the board of Directors of Philips Electrical Industries at Eindhoven, Holland.

Dr. Henry Edward Merritt, M.B.E., D.Sc. (Eng.), M.I.Mech.E., who as recorded in our October 5 issue, has resigned his position as Chief Research Officer to the British Transport Commission, to become

At a meeting of the Managers' Conference held at the Irish Railway Clearing House, Dublin, on October 9, Mr. G. B. Howden, General Manager, Coras Iompair Eireann, and Great Northern Railway (Ireland), was unanimously elected Chairman of the Conference for the year 1952.

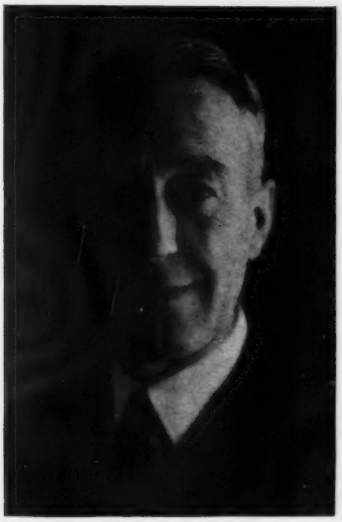
Mr. N. H. Briant, District Operating Superintendent, Chester, Western Region, who, as recorded in our October 12 issue, has been appointed District Operating Superintendent, Paddington, joined the Great Western Railway in the Stores Department at Swindon in 1922, and later was transferred to the General Manager's Office. Following a course of special training Mr. Briant was appointed Junior

*Dr. Max Strauss*

Appointed General Secretary, Swiss Federal Railways

*Dr. H. E. Merritt*

Who has resigned as Chief Research Officer, British Transport Commission



*Mr. N. H. Briant*

Appointed District Operating Superintendent, Paddington, Western Region

Dr. Max Strauss, Secretary of the Third Division, Swiss Federal Railways, who, as recorded in our September 28 issue, has been appointed General Secretary, was born in Zurich in 1913. He studied at Zurich University and in 1937 graduated as an M.A. (Law). The following year he became a Barrister-at-Law and was in private practice until 1941, when he joined the Swiss Federal Railways. Dr. Strauss served two years in the Administrative and Technical Departments of both the Regional Direction at Zurich and the General Direction at Berne, and became Junior Solicitor in 1944. He was appointed Secretary of the Third Division at Zurich in 1946.

The Southern Region has announced that Mr. J. H. C. Fulford, Surveyor, Estate & Rating Surveyor's Department, Marylebone, Eastern Region, has been appointed District Estate Surveyor (Western District), Victoria, with effect from October 29.

Mr. Charles F. Cleaver has relinquished the office of Manager, Railcars, but remains a Director of, A.C.V. Sales Limited. In this capacity he will continue to exercise the general oversight and guidance of railcar negotiations for sale both in this country and abroad, service arrangements, and new-design and development work.

Chief Adminstrative Engineer to the Rootes Group at its Coventry motor factories, is 51 years of age. He served an engineering apprenticeship with Vickers Limited, and in 1925 joined David Brown & Sons (Huddersfield) Ltd., as Research Engineer, later becoming Chief Engineer. He travelled extensively in Europe, America and the U.S.S.R. in connection with the development of a wide range of transport and industrial machinery. In 1937 he was appointed by the War Office to take charge of tank design, and as Director of Design, Mechanisation Board, was responsible for the initiation in 1940 of the "Churchill" tank and for many of its constructional features. His researches into the steering of track-laying vehicles led to his invention of a new transmission system and as Technical Director of David Brown Tractors Limited he devoted the remainder of the war period to the development of that transmission and its application to all subsequent British heavy tanks; his work was recognised by the Royal Commission on Awards to Inventors. In 1945 Dr. Merritt joined the Nuffield Organisation, to undertake further research and development work in connection with road and military vehicles and agricultural machinery, and in 1949 he joined the British Transport Commission as Chief Research Officer.

Assistant to the Divisional Superintendent at Exeter in 1933 and three years later moved to Newport in a similar capacity. In October, 1937, he transferred to Chester as Chief Clerk to the Divisional Superintendent, and later was promoted to Assistant Superintendent. In 1946 he was appointed Divisional Superintendent to the Chester Division, and was later re-designated District Operating Superintendent.

Mr. John E. Armstrong, Junior, has been appointed Engineer of Track, Canadian Pacific Railway.

We regret to record the death on October 9, at the age of 84, of Mr. William James Edwards, A.M.I.C.E., who was formerly the Assistant Chief Engineer of the Taff Vale Railway and who retired in 1925 after serving under the Great Western Railway for three years.

The Minister of Transport has appointed Mr. G. M. Dobson, as a representative of agriculture, to fill the vacancy on the Transport Users Consultative Committee for Scotland caused by the resignation of Mr. A. R. Semple. Mr. Dobson is a Member of the Council of the National Farmers' Union for Scotland, and ex-President of the National Farmers' Union West Berwickshire Area Committee.

*Mr. D. Kirwan*

Operating Superintendent, Coras Iompair Eireann, 1945-51

Mr. D. Kirwan, Operating Superintendent, Coras Iompair Eireann, who retired on September 30, joined the G.S. & W.R. in 1903. He gained experience in the Goods, Passenger and Parcels Departments at Cork, and was attached to the District Superintendent's Office for some years. In 1919, he was appointed Chief Clerk to District Superintendent, Tralee, and in 1922 was promoted to Limerick in a similar capacity. On the railway amalgamation of 1925 he was transferred to Dublin, where he was assigned to special duties in the Operating Superintendent's Department. He became Chief Trains Clerk in 1933, and in 1942 was appointed Operating Assistant. Mr. Kirwan was appointed Operating Superintendent, Coras Iompair Eireann, in 1945. He has been Chairman since 1942 of Section Council No. 1 for Clerical & Supervisory Staffs and of No. 2 for Rail Operative Staff—Wages Grades. He represented the Great Southern Railways on the Railway Clearing House, Rules & Regulations Special Committee, for several years. He has also conducted classes at the Dublin School of Commerce in railway signalling and train control. Mr. Kirwan was Military Liaison Officer during the recent world war period and held the rank of Major.

We regret to record the death on October 12, at the age of 68, of Mr. Victor W. Bone, M.B.E., J.P., former Chairman & Managing Director of Ruston & Hornsby Limited. He served his engineering apprenticeship with Ransomes, Sims & Jefferies Limited, of Ipswich, a firm which has for some years been associated with Ruston & Hornsby Limited, and after various managerial appointments was appointed a Joint Managing Director in 1917. On the amalgamation of Ransomes with Rustons in 1919, Mr. Bone transferred to Lincoln and became a Director in charge of manufacturing for that company. In 1929 he took a responsible part in the formation of Ruston-Bucyrus Limited, and was Managing Director from 1930 to 1944, when he took over the Managing Directorship of the parent company, Ruston & Hornsby Limited. He became Chairman of the company in February, 1948, and was Chairman & Managing Director until he resigned both appointments in 1949.

*Mr. P. Heneghan*

Appointed Operating Superintendent, Coras Iompair Eireann

Mr. P. Heneghan, Assistant Operating Superintendent, Coras Iompair Eireann, who, as recorded in our October 12 issue, has been appointed Operating Superintendent, was born at Ballinrobe and educated at the Christian Brothers' Schools there. He joined the service of the G.S. & W.R. in 1912 at Millstreet, County Cork, was appointed Chief Clerk in the District Superintendent's Office at Tralee in 1929, and was a Founder Member and Secretary of the Railway Employees' Protection Association, which came into being in 1932. In 1934 he was transferred to headquarters at Kingsbridge and became Chief Clerk in the passenger rolling stock section the following year. Mr. Heneghan was in charge of the Wagon Department from 1940 until 1942, when he was made Assistant Operating Superintendent.

Mr. T. A. Crowe, who, as recorded in our September 14 issue, has joined the board of the North British Locomotive Co. Ltd. as Chief Managing Director, was educated at Durham School and at Armstrong (now King's) College, the Newcastle-on-Tyne division of the University of Durham. Concurrently with his university career, Mr. Crowe served as a premium pupil with R. & W. Hawthorn Leslie & Co. Ltd., but this training was interrupted for two years during which he served as a Temporary Engineer Sub-Lieutenant in the Royal Navy. On taking the degree of Bachelor of Science in 1920, he was awarded a distinction in his professional subject—marine engineering—and in 1922 he was awarded the degree of Master of Science. Subsequently he entered the drawing office of R. & W. Hawthorn Leslie & Co. Ltd., and remained there until his appointment as Assistant Outside Manager at the St. Peters Works in 1925. After two years in this capacity he became Assistant to the General Manager and held this position until 1935, when he joined John Brown & Co. Ltd., as Engineering Director of the Clyde Bank Engine Works. Mr. Crowe is a Member of Council of the Institution of Mechanical Engineers and of the Institution of Naval Architects, a Vice-President of the Institution of Engineers & Shipbuilders in Scotland and a Member of the Institute of Marine Engineers and Institute of Metals.

*Mr. J. Kirkby Thomas*

Appointed Principal, Railway Executive Staff Training School, Derby

Mr. J. Kirkby Thomas, Principal, Railway Executive Staff Training Schools, Darlington, who, as recorded in our October 5 issue, has been appointed Principal, Railway Executive Staff Training School, Derby, as from October 20, was born at Liverpool and educated at Holt High School, Liverpool, and Liverpool University, where he graduated with first class honours and was a prizeman and a research scholar. He was English master at Wallsend Grammar School from 1930 to 1946 and Senior Lecturer in English and Education at West Jesmond Training College, Newcastle-on-Tyne, between 1946-49. In 1949 he was appointed Deputy Principal of Kirkby Training College, Liverpool, and, in 1950, Principal, Railway Executive Staff Training Schools, Darlington. He was also a lecturer in Psychology and English in the Municipal College of Commerce, Newcastle-on-Tyne, both before and after the recent war. Mr. Thomas is the author of a number of educational books and has contributed articles on railway subjects to the technical Press.

We regret to record the death on October 11, at the age of 66, of Mr. George Smith, M.B.E., who retired from the position of District Operating Superintendent, Hull, North Eastern Region, in 1949.

### Transportation Club Dinner

The next monthly dinner of the Transportation Club has been arranged for Tuesday, November 6. Sir James Milne, formerly General Manager of the Great Western Railway, has indicated his intention of being present.

We regret to record the death on October 11 of Mr. Albert E. Hancock, Service Manager of the Hunslet Engine Co. Ltd. He was well known throughout the National Coal Board for his work in connection with his company's flameproof mines locomotives, and on British public and industrial lines and also abroad in Peru, Bolivia, Iraq, Egypt and other countries, where he had travelled to install diesel-mechanical locomotives. He was trained at Kerr Stuart's, and after a short period with the North British Locomotive Co. Ltd., joined Hunslet over twenty years ago.

# Winter Freight Movement

*Press comment on joint plan of B.T.C., industry, commerce, and agriculture to overcome winter freight traffic difficulties*

Commenting on the serious decline in railway staff as caused largely by dissatisfaction with wages and conditions compared with those in other occupations, *The Times* points out that this cannot be coped with until new principles of fixing railway charges have been applied in detail and "radical reorganisation has taken place in the light of the rates structure." The scheme to divert freight traffic from congested routes, of which some account was given in our last week's issue, " might have been expected to be normal procedure. The same is true of the proposal to ignore the boundaries and exchange points of the former railway companies in diverting the traffic."

**Consultation with Employees**

Whilst representatives of manufacturers and traders have agreed to co-operate in speedy clearance of wagons and in other ways, *The Times* emphasises that the co-operation of their employees is vital and that these, who are not in the railway unions, have not so far been consulted. Although such voluntary co-operation will be well paid at weekend rates, passengers, it is said, will probably suffer involuntarily through curtailment of services. A warning is given of the serious effects on traffic working of a prolonged severe winter, and some disappointment is felt at the emergency measures to handle traffic, which " will help in the short run, but it would be vastly more comforting to have the assurance that the long-term difficulties will soon be dealt with boldly."

In the City Notes of *The Times* it is stated that speedy offloading is more important than observance of sound transport principles in despatch of wagons, as the contribution which transport users can make to solution of the traffic problem. The task of the 51 emergency local Joint Committees will not, it is felt, be easy: " with the best will in the world, there will be wagons delivered on Saturday . . . not unloaded till Monday, and others loaded on Saturday . . . not moved till Monday. And this is only one example of occasions for mutual reproach which will be difficult unless there is a spirit of co-operation. . . . But the effort, when so much depends on it, should be forthcoming."

**Cost of Proposed Measures**

Diversion of traffic to avoid congested points is criticised by *The Manchester Guardian* in a leading article entitled " Longest Way Round," on the grounds of expense: " It may be better to send a parcel from Manchester to London, say, by way of Bristol, rather than hold it up for weeks in some depot, but it is an expensive way of sending parcels. And the proposed volume of week-end working (at overtime rates) will add heavily to transport costs . . . " Use of road haulage to relieve the railways, it is maintained, will mean more handling, increased wear on the roads, and again, increased costs. " It may be " states the article " that the railways have drifted into such a state that these emergency measures are necessary whatever the cost." The public will be sharply critical, and " those who control our Nationalised transport system must not be allowed to slip into the habit of thinking that any way of moving freight is good enough as long as it moves at all." Much of the trouble, says *The Manchester Guardian*, is caused by failure to raise enough coal, largely because depleted coal stocks do not allow of embargoes on coal traffic to ease congestion in other traffic. " Another million tons of coal in stock " it adds " would be an enormous help to our transport system as well as to so many other branches of national life. We have also added greatly to our difficulties by the shorter working week, not only on the railways but in industry at large. Perhaps we can pay the bills this winter. Can we meet them again next year?"

The *News Chronicle* considers that the decision to put freight first is " drastic, but correct," but emphasises the probable inconvenience to the public of passenger train cuts, and hopes that the Railway Executive plans for these " will be flexible enough to leave working and business men's trains untouched so far as possible." Co-operation will also be needed from the unions; the N.U.R., it adds, has been " extremely helpful, which is very fortunate," for the success of the traffic campaign is largely in its hands. It is not clear, it is stated, whether the Railway Executive has sought the goodwill of the T.U.C.; if not, it should do so, for co-ordination of freight traffic will involve more than the railway unions.

" It is still doubtful " adds the *News Chronicle* " whether the resources available to the railways are adequate even with the most skilful manipulation," and it goes on to call for the participation of private road hauliers in the concerted effort to move traffic, which, it maintains, would necessitate abolition of the 25-mile limit on private road hauliers. " Setting private enterprise free on the roads " it concludes " would give Puffing Billy a safety margin which he badly needs."

The emergency steps taken by the B.T.C. and the Railway Executive are considered by *The Economist* to be " sensible." Much, however, will depend on local co-operation between transport services and traders; the railways, it is stated, " are entitled . . . to expect a determined effort on industry's part to keep traffic moving at weekends; the spread of the five-day week in industry has increasingly forced transport itself into a five-day operating pattern that is a major impediment to the maintenance of a continuous flow of traffic." The ability of the joint emergency organisation, *The Economist* continues, " to keep as many wagons on the move as possible during the worst of the winter is crucial to the success of the emergency exercise. Both sides (transport operators and users) will have their failures, but equally both have the highest responsibility to do their best."

# Progress in Modernisation of Euston Station

*A review of recently installed amenities, with special reference to extensive detailed improvements*

During the past two years a number of changes and some rearrangements have taken place at Euston Station, London Midland Region, as part of a plan to improve the amenities and appearance of the station. These new features have been described in our columns from time to time, and a point has now been reached at which their combined effect has produced a notable improvement in this important terminus.

The approaches to the station have received effective treatment, though, as with the station buildings, there is yet a fair amount of work to complete. At the main entrance in Euston Road, the stone lodges flanking the roadway have been cleaned and now carry large signs marking the entrance to the station. The pavement in front of the lodges has been tidied by removing railings and laying crazy-paving stonework. A wall at the side of each lodge carries an attractive panelled advertisement board and completes the symmetrical appearance. Two flagstaffs have been provided for larger banners, or flags, displayed on festive occasions, in place of the former practice of using the lamp standards, and the present In and Out signs will shortly be replaced by modern fittings.

Bombed property at the north side of Euston Square, which presented a dilapidated spectacle at the approach to Euston Hotel, is being demolished. Repainting the station gates in black and gold has included effective treatment of the London & Birmingham Railway coats-of-arms in colour.

Extensive repainting has improved the appearance of many existing structures, especially the Great Hall, where the best features have been brought out by skilful use of maroon, cream, pale blue, and black. The board room, which has been taken over by the British Transport Commission, may possibly be used for a museum collection, and the interior layout of the Great Hall is under further consideration. It has been suggested that future changes in the Hall should include complete removal of the present sleeper reservation and enquiry bureau, which is out of harmony with the main building.

Until a decision is reached on the future of the Great Hall, further improvements to the main forecourt are in abeyance. These are expected to include new signposting, a much needed change in this vicinity, which is hampered by the mail traffic handled in the forecourt. A recent development here has been the provision of the sleeper-reservation indicator described in our September 21 issue. The departure platforms are also awaiting treatment, though a number of new platform signs have been introduced and a special " Royal Scot " sign has been erected.

On the arrival platforms the change brought about by repainting in maroon, the Regional colour, is particularly apparent. The extensive contribution to the new arrangements which has been made by the Public Relations & Publicity Department is shown in most parts of the station, but especially so in the arrival platform area. New illuminated signs and direction boards with clear lettering have replaced earlier ones, some of which dated back to L.N.W.R. days. Advertisement hoardings have been redesigned and

attractive displays have taken the place of the previous patchwork arrangement. Between the Underground entrances on platforms 4 and 5 a neat advertisement board has been erected and one of the stairways improved by the removal of unsightly railings and the provision of suitable hoardings. All London Transport signs on London Midland Region property, except "marker" signs, have been replaced by signs in Regional colours. The subways connecting the arrival side and concourse with the Underground station have been provided throughout with new direction signs in Regional colours and the advertising display on the tiled walls is now in process of being modernised.

The provision of lockers for passengers' luggage has been referred to in our November 18, 1949, issue, and is an attractive addition to the amenities of the station. At the head of the electric train platforms, 4 and 5, a new train indicator has been installed and an advertisement board is to be erected in the space between the local booking kiosk and the side of No. 3 platform.

A further improvement has been reconstruction of the gentlemen's lavatory situated near the now-demolished train arrival pen. Demolition of the road bridge off the end of the platforms is now well under way, and, as stated in our March 16 issue, will permit extensive rearrangement of tracks leading into the station and the lengthening of platforms. In conjunction with this scheme work is proceding on the new power-operated signalbox outside the immediate station area.

Probably the most striking improvement has been the provision of a new train arrival bureau, described and illustrated in our August 17 issue. The new bureau has proved highly popular with passengers and provides an amenity much in advance of any similar building elsewhere on British Railways.

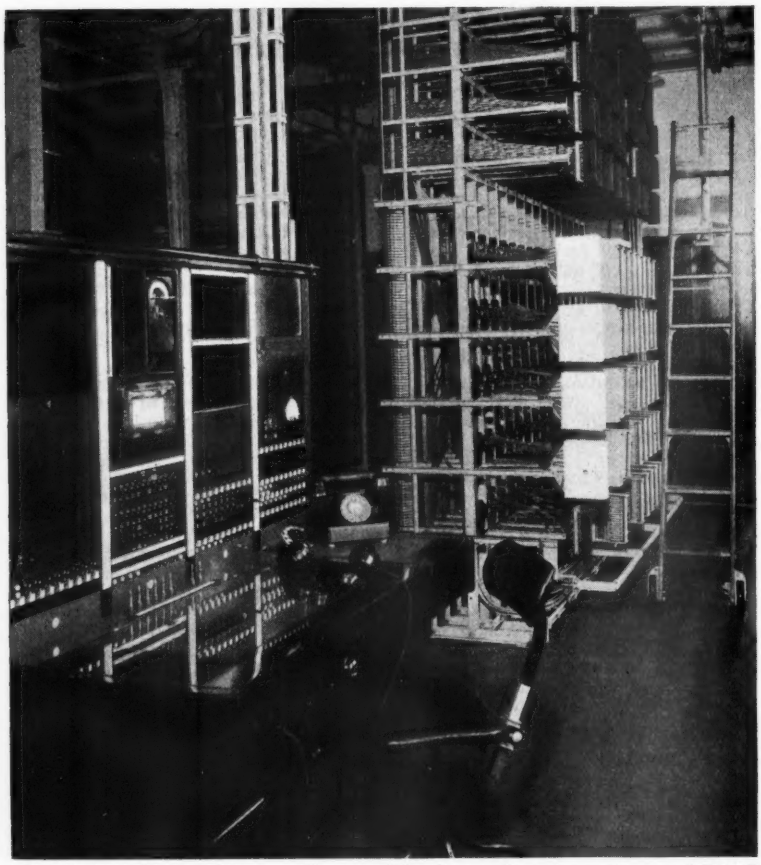
# Telephone Exchange at Manchester Victoria

*Equipment consisting of a 10-position manual switchboard associated with a 450-line automatic exchange*

The combined manual and automatic telephone exchange at Manchester Victoria Station in the London Midland Region has been renewed and modernised at a cost of £27,000. Apart from requiring excessive maintenance the former equipment installed in 1923 had become inadequate for modern needs. Because of lack of alternative accommodation the new exchange had to be installed on the site of the old exchange and the changeover therefore had to be carefully planned.

The first stage was commenced on March 27, 1951, and the new manual switchboard was installed and brought into use on June 10, when the original automatic exchange was disconnected. During the second stage all existing equipment was removed and the new automatic exchange installed. The new combined exchange was brought into use on August 12.

Throughout the nine weeks from June 10 to August 12 when automatic working was suspended all calls had to be handled through the manual switchboard. Although this period coincided with the summer season, when peak demands on the exchange are made, additional exchange operators were provided and the various difficulties entailed overcome.



*Test desk and main frame at the new Manchester Victoria exchange of British Railways*

### Description of Equipment

The new equipment includes a 10-position manual switchboard associated with a 450-line automatic exchange serving the local railway offices and station. The manual switchboard deals with incoming and outgoing G.P.O. calls, including public enquiries, over 34 direct lines, and also with calls to and from the railway telephone system, the connections to which comprise 22 trunks, 36 tie lines, and 16 local bus lines.

Nine lines are provided between the manual switchboard and the station enquiry bureau for incoming public calls and the installation has been designed to allow for future extension.

Equipment installed is of the latest design and G.P.O. "2,000" switches have been used for the group and final selectors. Specified railway extensions have direct access to the G.P.O. for local calls only. Owing to lack of space exchange batteries have had to be installed away from the exchange itself. Duplicate 500 amp./hr. 50-volt DP batteries have been provided and these are operated on the charge/discharge principle. The batteries are charged by a metal rectifier set.

### Routine Tests

A test desk, shown in the photograph reproduced on the left is provided in the apparatus room from which routine tests can be made on all lines and equipment. The station electric master-clock is housed in the exchange and four small repeater dials have been installed along the manual switchboard for the use of operators when timing calls.

The scheme of decoration of the modernised exchange comprises off-white ceilings with cream walls and resida green dado with black skirting. Windows are fitted with Pinoleum blinds, and fluorescent lighting has been installed in the manual exchange. Forced ventilators and air filters have been installed and a cloakroom provided off the manual exchange for operators' use.

The equipment was manufactured and installed, in collaboration with British Railways staff, by the General Electric Co. Ltd., under the supervision of Mr. S. Williams, Signal & Telecommunications Engineer, London Midland Region.

# Passenger Charges Scheme, 1951

*Further suggestions put forward by the B.T.C. to increase revenue: proposals to abolish traders' season tickets and bulk travel facilities*

When the Transport Tribunal continued its inquiry into the British Transport Commission (Passenger) Charges Scheme, 1951, at the Church House, Westminster, on October 10, Sir Malcolm Trustram Eve, K.C., Chief Advocate for the B.T.C., said that he must submit suggestions to the Tribunal for more revenue from the proposed scheme. Large wage claims had recently been made on the Commission and negotiations were in progress. As a result of settlements affected between the negotiating parties subsequent to the lodging of the original scheme there would be an increase in working expenses as a whole of not less than £15 million in a full twelve months.

The amount of this total applicable to the London area passenger service was of the order of £3 million. Already, according to the views of the Commission, the London area would have, if the proposed charges were authorised, a shortfall of £1,500,000, which, added to the £3,000,000, made it £4,500,000. If the proposed passenger charges were authorised, there would be an estimated shortfall of £15,700,000, and adding £15 million for additional wages gave a new shortfall of £30,700,000. He proposed to ask leave to put before the Tribunal suggestions for producing £4 million more in London and £250,000 outside London.

### Revised London Fare Proposals

Sir Trustram Eve said that he was going to ask for a new ordinary single fare for London Transport and a new scale other than that proposed in the draft scheme for early morning fares. The new proposals for ordinary single fares were: two miles, increased from 3d. to 3½d.; three miles, 4½d. to 5d.; five miles, 7½d. to 8d.; seven miles, 10½d. to 11d.; nine miles, 1s. 1½d. to 1s. 2d.; 11 miles, 1s. 4½d. to 1s. 5d.; 13 miles, 1s. 7½d. to 1s. 8d.; 15 miles, 1s. 10½d. to 1s. 11d.; 17 miles, 2s. 1½d. to 2s. 2d.; and 19 miles, 2s. 4½d. to 2s. 5d. The new proposals for early morning fares were: three miles, increased from 7½d. to 8d.; five miles, 10½d. to 11d.; seven miles, 1s. 1d. to 1s. 2d.; and nine miles, 1s. 4d. to 1s. 5d.

Under the scheme the B.T.C. proposed that there would be no increase in season ticket rates more than 25 per cent. and it now suggested it should not be increased by more than 50 per cent. No other fare in operation immediately before the scheme came into force was increased by more than 50 per cent. and it now suggested it should not be increased by more than 75 per cent.

When the draft scheme was lodged, it was intended that London should be asked to pay its specific costs in full, and its own reasonable proportion of central charges, including its reasonable proportion of provision for reserves. It was still the intention that London should carry out that obligation, but the estimated figure of £87,300,000 was now too low by more than £1½ million. In this draft scheme, London was not being asked to pay more than its fair share.

Passengers outside London were also being asked to pay their specific costs in full, but the outside London traffic could not bear the full share of its own joint costs, including central charges. The estimate of £92 million for outside London would not be substantially altered, but it was right to draw attention to the fact that as in London costs had risen, and would also be affected by wage negotiations.

In reviewing the main types of fares, they had arrived at the conclusion that reduced fares were both cheap to the public and revenue producers for the B.T.C., but that the field for further increased receipts from these lower fares was very limited. These concessions represented a considerable advantage to the public. They gave a wide range of travel at relatively low fares. If the railways were to play their part in local passenger transport there must be a broad similarity between the local rail and local road charges as there was in the London area.

In the case of excursions the B.T.C. felt that there was a reluctance to spend even on such a popular event as the Blackpool illuminations. In 1949, for instance, 353,000 passengers on excursions to the Blackpool illuminations brought in some £222,000, but in 1950, 117,000 passengers paid only £70,000. Excursions were useful to the public and to the Commission, and had definitely arrested some of the decline in traffic, but there was little extra to be got from them in the future.

The idea of a common fare for all journeys, except excursions, had been carefully considered before the draft scheme was lodged, but it was abandoned in the early stages as a luxury the B.T.C. could not afford. A 1½d. a mile fare, instead of the ordinary and monthly returns, would involve a smaller yield of between £1½ million and £2 million; 1½d. a mile would result in a loss of £6 million. Reducing the single fare from 2½d. to 2d., as had been suggested, would entail a net loss of approximately £1½ million. Only 3·67 of the total receipts outside London were from workmen's fares although in journeys they were just over 21·36 per cent.

### Traders' Season Tickets

On October 11, Sir Malcolm Trustram Eve, continuing, said that it was the intention of the B.T.C. to withdraw certain ticket concessions. Traders' season tickets, he said, were thought to be the oldest privilege on the railways. They were introduced over a hundred years ago and their origin was rather obscure. One view was that they were introduced to encourage traders to travel as widely as possible to increase the freight business of which the railways had a monopoly at the time. An alternative view was that they were introduced when railway competition was at its keenest.

A check on these tickets was made in 1950 and it was found that 70 per cent. in the Southern Region were used for "residential purposes"; 55 per cent. in the Eastern Region; 39 per cent. in Scotland; and between 19 and 22 per cent. in other Regions. Traders' seasons in the London area brought in only £40,000 a year.

While the B.T.C. was limited to the amount it might charge, it was under no obligation to issue these tickets at all, and the intention was to withdraw them. They were unfair between various members of the business community and unfair between the business community and the rest of the travelling public. They had no commercial justification because they did little or nothing to promote any business on the railways. After discounting for the loss of traffic through the withdrawal of this concession the estimated net yield to the B.T.C. under the new proposals would be something like £471,000.

### Bulk Travel Tickets

Another concession it was proposed to abolish was bulk travel which he also described as unfair to other passengers. In this case it was now estimated that there would be a net yield of £573,000 attributable to the withdrawal of this concession. Dealing with concession rates for commercial travellers, Sir Trustram Eve said that they were travelling at about one sixth less than the standard fare fixed in 1928.

The receipts derived from these tickets were at present £200,000, and withdrawal of the privilege it was estimated would add about £76,000, after allowing about 5 per cent. reduction in travel owing to this withdrawal. The matter of Forces and police fares was at present under negotiation, and the B.T.C. hoped to get a considerable increased amount out of this.

Of the estimated average charge per passenger mile, in the case of workmen's and early morning returns under the scheme as originally framed they were to be increased from ·71d. to ·85d., and it was now proposed that they should rise to ·86d. In the case of season tickets, the original proposal was to increase these from ·76d. to ·99d., but it was now proposed that they should be increased to 1·03d.

The chief object of the scheme for the London area was to increase revenue under the draft scheme by £11 million in round figures, and under the suggested amendments by £15 million to bring the level of fares into relationship with the levels of costs. The break-up of the £11 million was: £6,900,000 for ordinary; £2,100,000 early morning; and £1,800,000 seasons. The £15 million break-up was £10,200,000 ordinary; £2,600,000 early morning; and £2,000,000 seasons. It was sought to achieve the main objective broadly by raising the level of fares by 20 per cent. without any major alteration in the structure of fares approved last year.

Sir Trustram Eve described three "weaknesses" in the existing fares structure as too many odd halfpennies, too many substandard charges, and the shift workers' tickets. Proposals were made to alter all three; otherwise the structure and relativity of fares fixed in 1950 were proposed to remain unaltered and raised approximately by one-fifth.

The area of the scheme was identical with that of 1950 and the L.T.S. line was still retained within the London area. It had been proved practicable to increase the yield of the scheme for the London area by £4 million by comparatively small amendments of scales producing quite a large amount of money. There would be about £3 million out of the £4 million from ordinary fares and £1 million from substandard fares.

In the case of early morning fares, where the traffic was heaviest, the increases were very small. If the draft scheme was adopted the increase of 1d. a day would affect 41·3 per cent. of the traffic; an increase of 1½d. a day, a further 14·4 per cent.; and an increase of 2d., a further 31·4 per cent. Therefore some 87 per cent. of the traffic lay between the 1d. and 2d. daily increases.

According to the amended table the corresponding figures would be: An increase of 1d. for 1·32 per cent.; 1½d. instead of affecting 14·4 per cent. would affect 39·95 per cent.; and a 2d. increase would go up to 40·49 per cent. Over 80 per cent. of the traffic would still continue within the 1d. and 2d. limit.

### Travel to Work

Several objectors had suggested in broad statements that there should be discrimination in favour of passengers who had to use services of necessity rather than choice and especially those travelling to and from work at whatever time of the day. Two had suggested that tickets for this purpose should be issued in blocks or some other suitable form covering five or six return journeys a week and that their availability should include transfers from one vehicle or form of transport to another.

There were many objections to these proposals on financial, commercial, and practical grounds, and their effect would be to increase the proportion of London area traffic travelling at early morning fares from 11 per cent. to about 50 per cent. or more, and to reduce the estimated yield in the draft schemes from £11 million to £2 million.

The B.T.C. hoped the Tribunal would not think it necessary to introduce five-day seasons which had been suggested in view of the five-day working week.

At the resumption of the inquiry on October 16, Sir Trustram Eve said that the draft scheme for the London area did not provide for charges below scale rates, except for children and scholars. All scales were maximum and the B.T.C. would be legally free to reduce below the maximum. There might be cases for concessions, such as day returns at particular times, excursions, special parties, and the like, and the B.T.C. asked the Tribunal to be free to do this, as was now the position under the 1950 scheme. While seeking this freedom of action the B.T.C. considered that in the London area reductions were justifiable only on sound commercial grounds.

### Workmen's Tickets

The B.T.C. asked that there should be no reference to shift workers in the scheme. Any person deemed to be a workman desiring to travel to work inside the hours of early morning tickets in London, or outside the hours of workmen's tickets for outside London, could obtain either an early morning or workmen's tickets, wherever they were in operation. If it was applied to all workers at any time, it would mean that 50 per cent. of all the traffic in London would be carried at these shift workers' rates, or, in other words, early morning fares, and an extra yield would be got on this scheme of £2 million, instead of £10,900,000 on the draft scheme. Financially that just could not be done.

Figures were available of shift-workmen's tickets issued in the London area in a test week. From Monday to Friday, 12,457 tickets were issued daily; on Saturday, 6,972; and on Sunday, 9,312. It was estimated that the 12,000 people using this facility from Monday to Friday, and the 7,000 or so on the Saturday, were spread over at least 30,000 different people in the course of the year, and the Sunday users over at least 12,000 persons, most of whom were different from those using the facility in the week.

The additional annual cost which would fall on the present users was impossible to calculate with any precision. The withdrawal of the facility would hurt the regular user less than the occasional user. The best estimate that the officers of the B.T.C. could give was that there would be a cost to the users of about £24,000 on London Transport and therefore a yield to the B.T.C. of £43,000 on London lines. The total for the B.T.C. would be £67,000, or, on the rates of the amended tables put in since the draft scheme was lodged, £68,000 in the London area.

It was proposed not to continue to issue cheap mid-day tickets on trams and trolleybuses and the extra net yield would be £32,156. It was thought that the average fare, now about 6d., was likely to be 9d.

### Season Ticket Rates

Sir Trustram Eve remarked that the matter of season tickets had been reported in rather an alarming way. The effect of altering the permitted increased limits from 25 per cent. to 50 per cent. involved only £277,000 for the whole of the London area. Every penny of this would be gained from tickets which were at present sub-standard and lower than the ordinary public rate. That figure of £277,000 was to be compared with a total of £13¾ million from season tickets under this scheme inside and outside London.

The draft scheme itself asked for an increase in season ticket rates inside and outside London of £2,257,000; 16⅔ per cent. on total receipts for a future year; under the amended scheme that figure would now be £2,534,000—an 18½ per cent. rise.

Under the amended scheme it was proposed to raise £14,800,000 in the London area, which would give a total revenue income for a future year of £91 million, instead of £87 million as under the original draft scheme. The original scheme was on the basis of a 20 per cent. rise in standard fare, producing less than 20 per cent. yield, and the amended tables were broadly a scheme producing a 20 per cent. rise. If the amended tables were accepted the average charge per passenger-mile in London would be 1·38d. and outside London 1·48d. Under the amended tables charges over the whole of the London area would average 92 per cent. above prewar and outside London 95 per cent.

Mr. A. B. B. Valentine, Member, London Transport Executive, the first witness called for the B.T.C. said that the declining trend in London area receipts during the first 20 weeks of 1950 was 1·98 per cent. per annum, and in the second 20 weeks it was 2·72 per cent. He considered that this was due to petrol derationing, abnormal weather, and a general tendency for traffic to decline which could only be set down to economic conditions. There had been a tremendous increase in private motoring at the expense of public transport.

The inquiry was adjourned until Wednesday.

## Staff & Labour Matters

### Miners' Wage Claim

The N.U.M. on October 10 lodged with the National Coal Board a wage claim which if conceded would cost the Coal Board £35 million a year; it seeks increases in the national minimum rates of £1 a week for surface workers, 23s. a week for day-wage underground workers, and 3s. a shift for piece-workers, and the weekly minimum of the underground worker would be raised from £6 7s. to £7 10s. a week, with corresponding increases in all day-wage rates of other grades.

### Post Office Workers

The Civil Service Arbitration Tribunal has awarded increases in pay varying from 9s. a week with retrospective effect to January 1, 1951, to Post Office telephonists. It has also awarded a reduction in the period of incremental scales for Post Office workers who will now receive their final increment two years earlier, at ages varying from 26 to 30.

### Engineers' Pay

A pay claim for £1 a week increase for 2,500,000 engineers was lodged with the Engineering & Allied Employers' National Federation on October 10 by the President of the A.E.U. on behalf of the unions affiliated to the C.S.E.U. It is understood that a further meeting has been arranged for November 14.

### Offer to London Busmen

Representatives of London bus, trolleybus, and tramwaymen have referred to the appropriate branches of the T.G.W.U. for consideration the offer of London Transport Executive to increase the wages of this section of their staff. Details of the offer have not been disclosed.

### Award to Provincial Busmen

The wages of 96,000 employees of provincial company-owned bus undertakings have been raised by 7-11s. weekly by the Arbitration Tribunal, which has also recommended an alteration to the national conditions agreement to allow two weeks' holiday with 88 hours' pay after three years' service.

The National Council for the Omnibus Industry on October 15 adopted the award, which is back-dated to the first pay period after August 30 last, and certain other agreed benefits are also to be implemented.

## Contracts & Tenders

As part of its 1952 programme the Railway Executive has placed a contract with the Metropolitan-Cammell Carriage & Wagon Co. Ltd., for 100 first and third class composite coaches and 50 40-ton bogie ballast wagons.

The Hunslet Engine Co. Ltd. has received an order from the Ministry of Supply for 14 Austerity 48½-ton 0-6-0 saddle-tank locomotives.

Arn Jung, G.m.b.H., Jungenthal, Germany, has received an order from the Finnish State Railways for 20 5-ft. gauge heavy-duty superheated steam locomotives and tenders.

The same company has recently completed delivery of a number of 2-6-2 superheated steam locomotives to Greece for the Thessaly Railways. The locomotives were delivered *via* Austria and Jugoslavia.

Following the order for 60 " 25 " class 4-8-4 locomotives, which, as recorded in our October 5 issue, has been placed with the North British Locomotive Co. Ltd. by the South African Railways, a further contract has been placed by the railway authorities with British Timken S.A. (Pty.) Ltd., to equip the locomotives completely with Timken tapered roller bearings. This equipment, which will be manufactured at the Aston, Birmingham, Works of British Timken Limited, will comprise Timken tapered roller bearing cannonboxes for leading bogie and all coupled wheel axles, tapered roller bearing axleboxes for the trailing bogie and tapered roller bearing crankpin equipment.

# European Timetable & Through Carriage Conference

*New service to Central Europe via Calais, and extensive acceleration of Harwich-Hook night service to Germany and Switzerland*

The main work of the European Timetable & Through Carriage Conference held this year in Oslo, at the invitation of the Norwegian State Railways, as described in our October 5 issue, was the revision of the regulations governing the Conference, as agreed at the plenary session, and the re-appointment of the Swiss Federal Railways as Managing Administration for a further five years, besides the revision of existing and introduction of new international passenger services. It was decided to hold next year's conference on October 1-11, in Nice.

The principal innovations in so far as they affect connections between Britain and the Continent next summer are given below.

### London-Paris Services

With the introduction next year of the new British Railways steamer *Normannia*, the Waterloo-Paris St. Lazare service *via* Southampton/Le Havre will be accelerated. As from May 18, the "Golden Arrow" service will leave Victoria at 11 a.m. and arrive Paris Nord at 6.5, instead of 5.52 p.m., and will leave Paris at 12.20 instead of 12.30 p.m.; the deceleration is due, it is understood, to increase in the weight of the French train.

The connections to and from Brussels *via* Calais and Baisieux are retained, but passengers will change at Lille in both directions. A railcar will run from Dunkirk to Lille, connecting with the Dover/Dunkirk night ferry service, and passengers will be able to travel to Switzerland again by this route, though changes will be necessary at Lille and Strasbourg.

### "Orient Express"

The "Orient Express," which has been running between Paris and Vienna only, will be extended twice weekly to Bucharest; east of Strasbourg, it will include a through ordinary carriage (all classes) between Calais Maritime and Vienna *via* Lille in connection with the 2 p.m. from Victoria *via* Folkestone/Calais and corresponding return service.

### "Arlberg Orient Express"

The timetable was reviewed, but owing to electrification work in progress in Austria improvements in the eastbound direction could not be effected. The present timetable as between Paris and Vienna will be maintained for 1952, with a departure from Paris Est at 22.15. The Calais branch will be retained, with a first and second class ordinary carriage and sleeping car between Calais and Vienna. A through carriage (with second class couchettes) and sleeping car will run between Calais and Chur during the high season.

### Harwich-Hook Night Service

From experience last summer it was agreed to re-time the "Hook Continental" to leave Parkeston Quay at 7.42 a.m. giving an arrival at Liverpool Street at 9.14. The same timing will be maintained during the winter of 1952-53.

A new train, the "Rhine Arrow," will be introduced between the Hook of Holland and Basle, to precede the "Rheingold Express." It will be composed of first and second class stock and will reach Basle at 5.19 p.m., which is within a few minutes of the pre-war arrival of the "Rheingold Express." Consequently, connections with practically all parts of Switzerland and Italy will be restored. By changing carriages *en route* between Cologne and Mainz better connections to Frankfurt, Munich, and Innsbruck will be possible, which are a great improvement on the pre-war timings.

### Harwich-Hook Day Service

The through sleeping car between The Hook and Hamburg-Altona will be extended to Flensburg, with connections to and from Scandinavia, and that between The Hook and Munich will run to and from Nuremberg instead.

# International Union of Railway Medical Services

Thirty-nine delegates from twelve European countries attended the second annual congress of the International Union of Railway Medical Services, which took place at the premises of the Medical Society of London between October 9-12. Dr. H. H. Cavendish Fuller, Chief Medical Officer of British Railways, was President of the Congress, and the delegates included Dr. A. Huyberechts, Assistant General Manager of the Belgian Railways and President of the Union. The principal subjects of discussion were hygiene and rehabilitation, and visits were made to various institutions of medical importance.

### Reception and Dinner

Other functions in which the delegates participated included a reception on October 9, at the Charing Cross Hotel, at which Mr. John Elliot, Chairman of the Railway Executive, welcomed the visitors. A dinner was also given by British Railways on October 11, at which Mr. V. M. Barrington-Ward, Member of the Railway Executive, presided and was supported by Dr. Cavendish Fuller, Mr. C. K. Bird, Chief Regional Officer, Eastern Region, Mr. V. Radford, Chief Financial Officer, Railway Executive, Mr. R. Adams Clarke, Chief Officer (Staff & Establishment), Railway Executive, and other Officers. In addition to the delegates, guests at the dinner included Mr. John Benstead, Deputy Chairman of the British Transport Commission.

Mr. Barrington-Ward extended a welcome to the delegates on behalf of the Railway Executive and referred appreciatively to the services rendered to the railway industry by the medical profession and to the important developments now taking place in railway medical services. Dr. Huyberechts responded.

### Delegates Attending

The delegates included the following:—

Algeria.—Dr. Choussat.
Austria.—Dr. A. Rheinberger.
Belgium.—Dr. A. Huyberechts, President of the Union; Dr. Daenen, Secretary of the Union; Dr. J. Goedertier, Treasurer of the Union; Dr. van Damme; Dr. Leduc; Dr. Dupont; Dr. J. Simonart.
France.—Dr. Bazy, Secretary General of the Union; Dr. Rouvillois; Dr. Ortega; Dr. Alibert; Dr. G. Michel; Dr. Ouary; Dr. Assali.
Germany (West).—Dr. R. Oeser, Vice-President of the Union.
Great Britain.—Dr. H. H. Cavendish Fuller, President of Congress; Drs. J. Sharp Grant; G. E. Graves Peirce; R. Fraser Mackenzie; W. A. R. Mailer; L. J. Haydon; C. T. Newnham.
Holland.—Dr. J. Zwarteveen.
Italy.—Dr. M. Galeone, Vice-President of the Union; Drs. Corrado Leone; Ettore di Tomassi; G. Quintiliani; T. Marzano; A. Pisano; L. Lunardoni; E. Pafi; Dr. Cavelli; Dr. Macchia; Dr. Lucisano; Dr. Bruni.
Norway.—Dr. Erich Erichsen.
Spain.—Dr. Jose Bravo; Dr. Huerta.
Sweden.—Dr. Ake Nystrom.
Switzerland.—Dr. von Buest.
Jugoslavia.—Dr. Jouvanovitch.

# Notes and News

**Crown Agents for the Colonies.**—A draughtsman surveyor is required by the Jamaica Government Railways for three years with possibility of permanency. See Official Notices on page 447.

**Outdoor Assistant Required.**—An outdoor assistant to Chief Mechanical Engineer is required by a British railway company operating in Chile and Bolivia. See Official Notices on page 447.

**Chief Draughtsman and Sectional Engineer Required.**—Applications are invited for the posts of chief draughtsman for Civil Engineer's Department, and a junior, assistant sectional or sectional engineer, required by a British railway company operating in Chile and Bolivia. See Official Notices on page 447.

**Civil Engineering Draughtsman Required.**—The Sudan Railways require a civil engineering draughtsman, between 25 and 40 years of age, for service in the Sudan, to supervise the work in the drawing office, instruct subordinate staff in draughtsmanship and prepare designs as required. See Official Notices on page 447.

**Recent French Steam Locomotive Practice.**—In the editorial note entitled "Modern French Steam Locomotives" in our October 12 issue, reference was made to "North American-built compound locomotives" (2-8-2). These locomotives, Class "141-R," are actually two-cylinder simples; the post-war French 2-8-2s, Class "141-P," which undertake similar duties, are four-cylinder compounds of quite different design.

**Scottish Region Stations Closed.**—As from October 1 the passenger train service was withdrawn on the Muir of Ord-Fortrose branch line in the Scottish Region. Stations concerned are Redcastle, Allangrange, Munlochy, Avoch, and Fortrose. Passenger train parcels and miscellaneous traffic are still being dealt with at stations on the Fortrose branch and are conveyed by freight train or motor vehicle to connect with the passenger train service. There is no alteration so far as freight train traffic is concerned.

**Economic Use of Materials.**—To emphasise the need for a greater effort in conserving the raw materials used in bus manufacture Leyland Motors Limited is holding an exhibition at Farington this week in which numerous practical examples of ways of saving materials are being given. Later the exhibition will be transferred to its factories at Leyland and Chorley. By demonstrating the various practices already in use in Leyland works to save steel, aluminium, wood, and hide, the company hopes to make all employees more conscious of the material supply position and so induce them to make further suggestions.

**Modernising Oban Passenger Station.**—Improvements which will take three months to complete have been started by the Scottish Region at Oban Station. A

new booking office is being built and as soon as it is ready the existing booking office in the centre of the concourse will be dismantled.

**September Steel Production.**—Steel production in September was at an annual rate of 15,749,000 tons as compared with 13,855,000 tons in August and 16,964,000 tons in September last year. The output of pig iron was at an annual rate of 9,854,000 tons as compared with 9,409,000 tons in August and 9,712,000 tons a year ago.

**Improved Signalling Arrangements at Dundee.**—The Scottish Region of British Railways plans to introduce colour-light signalling from Tay Bridge South signal-box to Dundee Central box to speed railway operation of traffic entering Dundee Tay Bridge from the south. Work on the project is expected to start in the near future.

**British Railways Coal and Steel Carryings.**—During the weekend to October 15 British Railways cleared 384,070 tons of coal from deep-mined pits and opencast sites; this is the highest weekend clearance since June and makes a total of 3,211,390 tons for the week. The latest figures for iron and steel show that 194,075 tons were conveyed during the week ended October 6 from the principal steelworks.

**Poster Illumination at York Station.**—Ultra violet ray lamps are being used to illuminate a large poster above the entrance to York Station. The poster advertises excursions to Blackpool and Morecambe for the illuminations and is on a board 38 ft. long × 40 in. deep. In daylight the poster is clear and colourful and shows Blackpool and Morecambe promenades in several colours of phosphorescent paint. During the evening the ultra violet lamps are switched on and there is no apparent source of light. The six lamps in use are of less wattage than the six ordinary bulbs formerly used and have resulted in a saving in electric power of 16 per cent.

**Institute of Transport, Metropolitan Section.**—Mr. A. B. B. Valentine, President of the Institute of Transport, and Member, London Transport Executive will visit the Metropolitan Section of the Institute of Transport on November 5, when Mr. G. F. Sinclair, Member, Road Haulage Executive, will read a paper on "Passenger Transport in Athens." The meeting will be held at 80, Portland Place, London, W.1, at 5.30 for 6 p.m.

**Institution of Locomotive Engineers.**—Mr. J. S. Tritton delivered his Presidential address on "The Inspecting Engineer's Contribution to Railway Economy" at a general meeting of the Institution of Locomotive Engineers held at the Institution of Mechanical Engineers on October 17.

**General Electric Co. Ltd.**—Sir Harry Railing, Chairman & Joint Managing Director of the General Electric Co. Ltd., stated at the recent 51st annual general meeting that their wages bill had increased by 215 per cent. since 1938, and that, whereas in that year the Government had taken one third of the profits, today it took two-thirds. While the company could not, within limits, object to an increasing taxation on distributed profits, they did object on principle to the taxation on profits retained in the business and used for increased economy, production, and expansion. Their strength had been built up only by a courageous policy and the confidence that they could continue to reckon on an expanding world-wide market.

**Appeal to Road Haulage Executive Staff.**—Major-General G. N. Russell, Chairman of the Road Haulage Executive, recently issued an appeal to British Road Services staff to make a special effort to assist in overcoming transport problems during the coming winter. He points to the probability that a combination of circumstances in addition to the weather will create an overall shortage of transport and add to the usual difficulties of winter operation. "British Road Services," Major-General Russell states, "will be called on to play its part in any emergency that may arise, and tasks quite different from normal may come your way. In particular, it is British Railways that we anticipate we can help most."

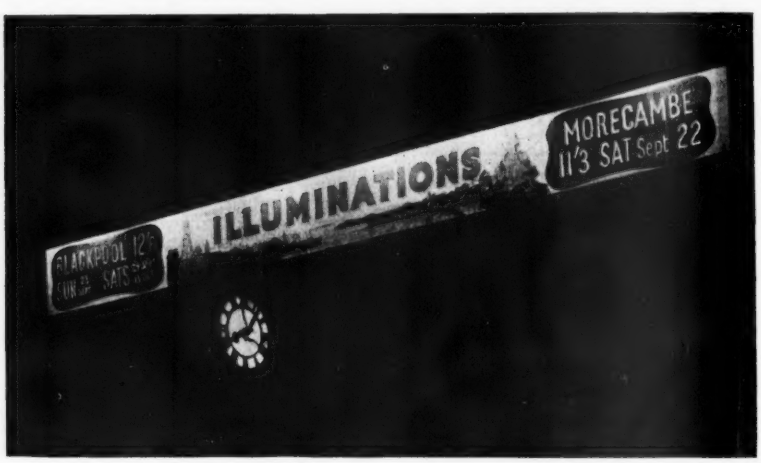
**Buenos Aires Transport Compensation.**—The British Commercial Counsellor in Buenos Aires has stated that the British Government has made "no effective progress" regarding compensation for British shareholders' interests in the Buenos Aires Transport Corporation. In addressing the annual general meeting of the British Chamber of Commerce, he referred to the operation of the financial clauses of the Anglo-Argentine protocol of last April, and said that payments arrears up to June, 1949, had now been remitted, with the exception of one or two cases which were still under discussion. As regards arrears covering the period June, 1949, to August, 1950, he said that the first batch of permits was issued early in September, and was soon followed by the remainder of those on which the Central Bank felt it had sufficient information. Some transfers of payments due for remittance after August 28, 1950, had been authorised, he added.

**Institution of Railway Signal Engineers.**—Mr. H. O. Baldwin will open an informal discussion on "Dual Maintenance" at a meeting of the Institution of Railway Signal Engineers to be held on November 7, at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2, at 6 p.m.

**"Britannia" Class Locomotive on the "Golden Arrow."**—On October 11 one of British Railways standard Class "7" Pacific locomotives made its inaugural appearance on the "Golden Arrow" between Victoria and Dover. The locomotive was No. 70004, *William Shakespeare*, which had previously been at the South Bank Exhibition, and among those present at the departure from Victoria were: Messrs. John Elliot, Chairman, V. M. Barrington Ward, and R. A. Riddles, Members, Railway Executive; C. P. Hopkins, Chief Regional Officer; S. W. Smart, Superintendent of Operation, Southern Region. At the same time there have been some modifications to the special decorations carried by the locomotive, and the "Golden Arrow" archway at the entrance to No. 8 platform at Victoria has been fitted with neon lighting.

**Alternative Rail and Road Facilities.**—Passengers holding ordinary, bulk travel, or monthly return rail tickets, and travelling *via* Huddersfield to Shepley & Shelley, Skelmanthorpe, Clayton West, Denbydale, or Penistone, on the North-Eastern Region may, provided there is no connectional train service available, now complete their journey from Huddersfield by road services of the Yorkshire Traction Co. Ltd., Sheffield Joint Omnibus Services, or County Motors (Lepton) Limited. Passengers must first exchange their rail ticket for a bus permit at Huddersfield. Similarly, passengers wishing to commence their journey by road from any of the above stations should produce their rail ticket at the station booking office, where a bus permit will be issued allowing them to travel by road to Huddersfield.

**British Road Services Organisation.**—At the September meeting of the Birmingham Centre of the Institute of Traffic Administration, Mr. R. P. Bowyer, District Traffic Manager, Road Haulage Executive, gave a paper on British Road Services organisation. The Executive comprises nine divisions; eight deal with general freight, parcels livestock and contract hire, the ninth is the development of the services provided by Pickfords Limited, still operating under the name of Pickfords, covering bulk liquids, furniture removals and storage and contract hire and known as the Special Traffic Division. The eight freight divisions are Scottish, North Western, North Eastern, Midland, Western, Eastern, South Eastern and South Western. Divisions are divided into districts, and districts into groups with a similar organisation in each. Finally, groups are divided into depots varying from two to six per group. The ultimate plan of traffic organisation is




*Poster illumination by ultra-violet ray at York Station*

a directional plan which has now been settled. Articulated vehicles are preferred for the advantages of the interchangeability of trailers and the saving in use of motive power by the use of spare trailers. Decentralisation is being carried out, and attempts are being made to standardise rates on a group basis. Consultation and co-operation with traders are being carried out as far as possible.

**Lightalloys Limited.**—The directors of Lightalloys Limited recommend a final dividend of 9d. a share, less income tax, making 1s. a share for the year ended July 1, which is the same as last year. Profit for the year was £45,197 against £50,463, provision for taxation being £28,154, against £27,253, leaving a net profit of £17,043, against £23,210. There remains £4,443 to be carried forward.

**Main-Line Diesel-Electric Locomotive on Southern Region.**—On October 15 the main-line diesel-electric locomotive No. 10202 went into regular service on the Southern Region. The locomotive, which had previously made a number of trial runs for training engine crews, has gone into service on the 1 p.m. Waterloo to the West of England train; the return working is by the 5.55 p.m. from Exeter Central, due at Waterloo at 10.9 p.m. No. 10202 is of similar design to No. 10201, which has been on show at the South Bank Exhibition and was described and illustrated in our March 9 issue. Both No. 10201 and No. 10202 were built at the Southern Region Works at Ashford.

**Silver Jubilee of Institute of Transport Western Section.**—On October 5 the Western Section of the Institute of Transport celebrated its twenty-five years' existence as a branch by holding a Silver Jubilee Luncheon at the Royal Hotel, Bristol. The guests on this occasion included Mr. J. S. Nicholl, Past President of the Institute, who conveyed the greetings and congratulations of the Council; and the following founder members of the Western Section Committee: Messrs. L. G. S. Hallet; R. H. Jones, formerly General Manager of the Port of Bristol Authority; R. G. Pittard, General Manager, United Counties Omnibus Co. Ltd. Another founder member, Mr. M. Arnet Robinson, General Manager, Coast Lines Limited, was unable to be present. The Chairman of the Section, Mr. H. J. S. Young, Deputy General Manager, Port of Bristol Authority, presided.

**Special Trains for Football Semi-Finals.**—Twenty-four special trains were run in the Scottish Region on October 13 in connection with the League Cup Semi-Final games at Hampden Park and Ibrox Stadium. Fourteen of the specials for the game at Hampden between Celtic and Rangers in connection with which there was a special service of trains between Glasgow Central and Mount Florida every few minutes from 1.35 p.m. until 2.35 p.m. For the match at Ibrox between Motherwell and Dundee four special trains left Glasgow St. Enoch between 2.5 p.m. and 2.30 p.m.

**Bolivar Railway Co. Ltd. Winding Up Approved.**—At an extra-ordinary general meeting of the Bolivar Railway Co. Ltd. on October 11 the voluntary winding up of the company was approved. Brigadier James Storar, presiding, said that payments under the scheme had already been made to the holders of prior lien, "A," "B" and "C" debenture stocks. It now only remained to place the company into voluntary liquidation so that the payments incorporated in the scheme could be made to the other classes of stockholders. At a

## The Southbound "Enterprise"


*The Belfast-Dublin-Cork "Enterprise" express near Lisburn, G.N.R. (I.)*

meeting of the La Guaira & Caracas Railway Co. Ltd. an identical resolution was passed.

**Passenger Train Reductions.**—Temporary passenger train reductions, to assist in handling freight traffic, as from October 29 include a number of off-peak hour local and stopping main-line trains in the six Regions. Main-line trains suspended include the 10.50 a.m. Euston to Blackpool and 10 a.m. Blackpool to Euston, 9.25 a.m. Charing Cross to Hastings and 7.10 p.m. Hastings to Charing Cross. Certain cross-country services are suspended, such as the 10.25 a.m. York to Bournemouth West and 11.16 a.m. Bournemouth West to York. No major long-distance main-line services are affected. The Railway Executive emphasises that withdrawals are only temporary. It is hoped that no further withdrawals will be necessitated this winter by prolonged severe weather or other factors.

## Forthcoming Meetings

October 19 (*Fri.*).—Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 5.30 p.m. Presidential Address, by Mr. A. C. Hartley.

October 19 (*Fri.*).—Stephenson Locomotive Society, 32, Russell Road, Kensington, W.14, at 6.45 p.m. "Brighton Locomotive Reminiscences," by Colonel L. Billinton, Vice-President.

October 20 (*Sat.*).—Permanent Way Institution, Leeds Section. Visit to the Slag & Steelworks of J. C. Eccles & Co. Ltd., Scunthorpe.

October 22 (*Mon.*).—Institute of Transport, Visual Aids Group, at 80, Portland Place, London, W.1, at 6 p.m. View and discussion of training and publicity films loaned by B.T.C., B.O.A.C., and C.P.R.

October 22 (*Mon.*).—Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 5.30 p.m. Discussion on "The Place of Electricity in a National Fuel Policy," opened by Sir John Hacking, President.

October 24 (*Wed.*).—British Railways, Southern Region, Lecture & Debating Society, at the Chapter House, St. Thomas' Street, S.E.1, at 5.45 p.m. "The Interest of Railway Life," by Mr. J. C. L. Train, Member, Railway Executive.

October 26 (*Fri.*).—Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 5.30 p.m. Discussion on "The Principles of Continuous Gauge Control in Sheet and Strip Rolling," by Mr. W. C. F. Hessenberg and Mr. R. B. Sims.

October 31 (*Wed.*) & November 1 (*Thu.*).—British Railways Public Demonstrations of Permanent Way Mechanical Equipment, at Marylebone Goods Depot, Rossmore Road, N.W.1, between 1-4 p.m. each day.

November 1 (*Thu.*).—British Railways, Western Region, London Lecture & Debating Society in the Clerks' Dining Club, Bishops Bridge Road, Paddington, W.2, at 5.45 p.m. "Young Men's Discussion."

November 3 (*Sat.*).—Stephenson Locomotive Society. Annual Dinner at the Temple Room, Imperial Hotel, Birmingham at 7 for 7.30 p.m.

## Railway Stock Market

Recent gains in stock markets attracted profit-taking, notably in the industrial sections, although a firm front was maintained by British Funds. Earlier this week buyers seemed to await the new Stock Exchange account, but there is little doubt that, although sentiment in the City continues buoyed up by expectations of a change of Government, this is offset by the many warnings of difficult conditions ahead due to growing competition in export markets and the prospect of drastic measures to stop the drain on British gold and dollar reserves. Changing conditions in export markets, it is feared, will mean that many companies will have difficulty in keeping earnings at the good levels shown for 1950-51 and that it will be prudent to expect some reductions in dividends in future.

Firmness of British Funds reflects buying of gilt-edged as a safety-first holding until the outlook becomes clearer; but it is generally believed that a trend towards higher money rates is inevitable. Shares of companies which have promised to supplement recent dividends with additional payments if dividend limitation does not become law, were again an active feature; but best levels were not held this week.

Overseas securities remained prominent, and after profit-taking left its mark on prices, fresh buying was in evidence. There was more activity in foreign rails, with Leopoldina stocks reflecting continued hopes that Brazil will shortly release the pay-out money and end the long wait by stockholders. Leopoldina ordinary stock was 10½, the preference up to 26¾, the 4 per cent. debentures 95¼ and the 6½ per cent. debentures 142. Leopoldina Terminal 5 per cent. debentures were 96 and the ordinary units 1s. 7½d.

Manila issues displayed firmness with the "A" debentures at 81 and the preference shares 9s. 9d. San Paulo attracted up to 16s. 4½d. for these 10s. units, which may be worth 20s., according to market views, if the company's full compensation claims are eventually met; though a long wait for a final decision seems likely.

The buying of Taltal shares was again a feature and was attributed to expectations of good improvement in financial results. Nitrate Rails shares displayed firmness at 25s. 3d. and Antofagasta ordinary stock was active, but subsequently showed a partial reaction to 19¼, while the preference stock at 77 also failed to hold best levels.

Canadian Pacifics remained active, but later eased to $75¼ on news of the $30,000,000 bond issue. This will bring in the equivalent of £10,000,000. The new issue is in 3½ per cent. 15-year collateral trust bonds which will be convertible from April, 1952, to April, 1959, into $25 shares on the basis of 29 shares for every $1,000 of bonds. British investors will in effect not be able to participate in this offer because the Treasury will not allow them Canadian dollars to take up the bonds. The market is continuing to anticipate an increase in Canadian Pacific's dividend over last year's $1½ total. This partly explains why at their current price the ordinary shares yield only 3⅛ per cent.

Underwriting has been in progress for the forthcoming public issue of first debenture and convertible debenture stocks by the White Pass Yukon Corporation. The latter is the new Canadian company formed to acquire from the existing English company the share and loan capital of the four operating companies comprising the White Pass and Yukon Railway. Although the new stocks will be Canadian dollar securities, arrangements for their subscription in London in sterling have been made.

United of Havana stocks remained uncertain and were again inclined to lose ground with the 5 per cent. 1906 debentures at 18¾.

Mexican issues held up well with Mexican Central "A" bonds at 82½ and National of Mexico 4½ per cent. non-assenteds at 45. Guayaquil & Quito bonds rose to 32.

Road Transport shares have been firm with Southdown 93s. 9d., West Riding 46s., Lancashire Transport 57s. 6d. and B.E.T. stock £475.

Engineering shares recorded small irregular movements. Guest Keen eased to 60s. 9d., Vickers to 50s. 9d. and T. W. Ward to 78. Hurst Nelson were firm at 62s. 6d. at Glasgow, and elsewhere, Birmingham Carriage changed hands around 38s. 7½. Vulcan Foundry were 27s. 3d., North British Locomotive 19s. 3d., Gloucester Wagon 16s. 4½d., Beyer Peacock 33s. 9d., Wagon Repairs 13s. 9d. and Charles Roberts eased to 27s. In the market there are confident expectations that locomotive builders and engineers will maintain their dividends; and there are hopes of a number of increases if dividend limitation is not enforced by law.

### Traffic Table of Overseas and Foreign Railways

| | Railway | Miles open | Week ended | Traffics for week: Total this year | Traffics for week: Inc. or dec. compared with 1949/50 | No. of week | Aggregate traffics to date: Total 1950/51 | Aggregate traffics to date: Increase or decrease |
|---|---|---|---|---|---|---|---|---|
| | | | | £ | £ | | £ | £ |
| South & Cen. America | Antofagasta ... | 811 | 5.10.51 | 139,260 | + 71,450 | 40 | 4,756,240 | + 2,166,576 |
| | Costa Rica ... | 281 | Aug., 1951 | c1,295,820 | + c150,407 | 9 | c2,568,670 | + c149,366 |
| | Dorada ... ... | 70 | Aug., 1951 | 36,976 | – 5,426 | 35 | 288,447 | – 24,505 |
| | Inter. Ctl. Amer.... | 794 | Aug., 1951 | $1,050,631 | – $52,196 | 35 | $9,022,027 | – $204,818 |
| | Paraguay Cent. ... | 274 | 6.10.51 | ₲308,990 | + ₲102,548 | 14 | ₲4,628,132 | + ₲2,014,748 |
| | Peru Corp. ... | 1,050 | Sep., 1951 | $7,933,000 | + $91,000 | 13 | $24,517,000 | + $1,070,000 |
| | ,, (Bolivian Section) | 66 | Sep., 1951 | Bs.14,404,000 | + Bs.1,620,000 | 13 | Bs.41,395,000 | + Bs. 10,886,000 |
| | Salvador ... ... | 100 | July, 1951 | c125,000 | + c20,000 | 4 | c125,000 | + c20,000 |
| | Taltal ... ... | 147 | Sep., 1951 | $2,449,000 | + $738,700 | 13 | $6,304,000 | + $1,825,300 |
| Canada | Canadian National† | 23,473 | Aug., 1951 | 18,335,000 | + 5,618,000 | 35 | 135,769,000 | + 30,949,000 |
| | Canadian Pacific†... | 17,037 | Aug., 1951 | 12,087,000 | + 3,514,000 | 35 | 93,011,000 | + 14,227,000 |
| Various | Barsi Light* ... | 167 | Aug., 1951 | 22,500 | – 1,785 | 21 | 191,250 | + 31,920 |
| | Egyptian Delta ... | 607 | 10.4.51 | 17,513 | – 267 | 4 | 17,513 | – 267 |
| | Gold Coast ... | 536 | Aug., 1951 | 220,509 | + 16,972 | 21 | 1,280,126 | + 109,832 |
| | Mid. of W.Australia | 277 | July, 1951 | 46,474 | + 2,594 | 4 | 46,474 | + 2,594 |
| | South Africa ... | 13,398 | 15.9.51 | 1,893,079 | + 131,664 | 24 | 45,286,079 | + 5,776,498 |
| | Victoria ... ... | 4,744 | June, 1951 | 1,812,933 | + 118,002 | 52 | — | — |

* Receipts are calculated at 1s. 6d. to the rupee † Calculated at $3 to £1